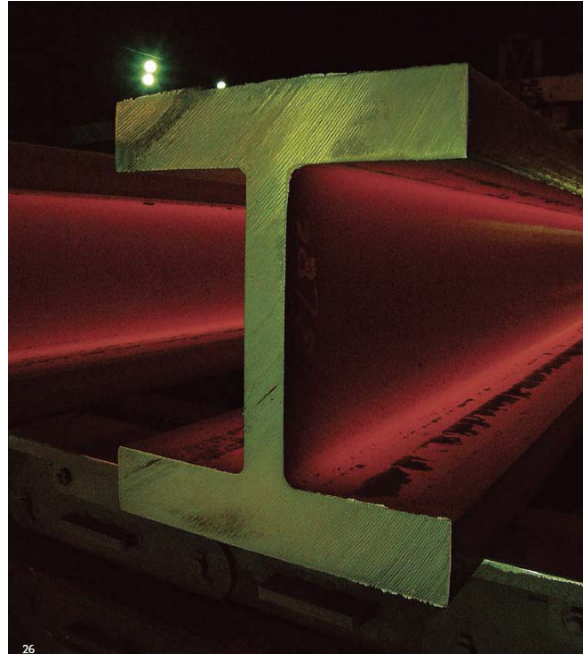


**NIPPON STEEL | NIPPON STEEL CORPORATION**

## Jumbo wide flange shapes



### Functional unit

1 t

### System boundary

final products       intermediate products

Production Stage and optional supplementary information

### Main specifications of the product

Production sites : Kashima and Wakayama Works

Main standards :

SN400A,SN400B,SN400C,SN490B,SN490C,SM400A,SM400B,  
SM490A,SM490B,SS400,NSGH325B,NSGH325C,NSGH355B,  
NSGH355C

Type : H-shape

Main sizes(unit:mm,t:thickness)

H418(t15) × B402(t30) ~H508(t75) × B462(t75)、

H492(t15) × B465(t20) ~H582(t50) × B500(t65)

※The other available standards and sizes are listed on page 3

### Company Information

**NIPPON STEEL CORPORATION**

About Us:

<https://www.nipponsteel.com/en/index.html>

Contact Us:

<https://www.nipponsteel.com/en/product/contact/structuralsteel.html>

Registration#	JR-AJ-19004E-C
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction
Publication date	12/6/2019
Verification date	01/12/2024
Verification method	Product-by-product
Verification#	JV-AJ-24003
Expiration date	01/11/2029

### PCR review was conducted by:

Approval date	05/10/2023
PCR review panel chair	Yasunari Matsuno (Chiba University)

### Third party verifier\*

Yasuo Koseki

Independent verification of data & declaration in accordance with ISO14025 and ISO21930.

internal       external

\*Auditor's name is stated if system certification has been performed.

## 1. Results of life cycle impact assessment (LCIA)

Parameter	Stage	【A1~A3】 + 【D】	【A1~A3】	Unit
Global warming IPCC2013 GWP100a		1300	2400	kg-CO <sub>2</sub> eq
Acidification		0.38	2.1	kg-SO <sub>2</sub> eq
Photochemical ozone		0.22	0.46	kg-C <sub>2</sub> H <sub>4</sub> eq

### Table Legend

【A1】: Raw material supply  
【A2】: Transport to factory  
【A3】: Manufacturing  
【D】: Recycling potential  
【A1~A3】: sum of 【A1】, 【A2】 and 【A3】 (cradle to gate)  
【A1~A3】+【D】: sum of 【A1】, 【A2】, 【A3】 and 【D】 (cradle to gate with allocation for scrap recycling)

Parameter	stage	Unit	【A1~A3】	【A1】	【A2】	【A3】	【D】
Global warming IPCC2013 GWP100a		kg-CO <sub>2</sub> eq	2.4E+03	5.6E+02	1.1E+02	1.7E+03	-1.1E+03
Ozone layer destruction		kg-CFC-11eq	1.1E-06	1.6E-07	7.5E-10	9.7E-07	-2.0E-07
Acidification		kg-SO <sub>2</sub> eq	2.1E+00	6.2E-01	6.6E-02	1.4E+00	-1.7E+00
Photochemical ozone		kg-C <sub>2</sub> H <sub>4</sub> eq	4.6E-01	5.3E-03	1.0E-03	4.5E-01	-2.4E-01
Eutrophication		kg-PO <sub>4</sub> <sup>3-</sup> eq	6.9E-02	6.9E-03	6.7E-13	6.2E-02	-2.0E-02

## 2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	7.8E+02	kg
Non-renewable energy resources	2.7E+04	MJ
Renewable material resources	9.4E+02	kg
Renewable primary energy	3.6E+02	MJ
Consumption of freshwater	2.3E+00	m <sup>3</sup>

## 3. Material composition

Material		Unit
iron [Fe]	≥95.63	%
carbon [C]	≤0.25	%
silicon [Si]	≤0.55	%
manganese [Mn]	≤1.65	%
phosphorus [P]	≤0.05	%
sulfur [S]	≤0.05	%
copper [Cu]	≤0.60	%
chromium [Cr]	≤0.36	%
nickel [Ni]	≤0.45	%
molybdenum [Mo]	≤0.15	%
niobium [Nb]	≤0.05	%
vanadium [V]	≤0.15	%
titanium [Ti]	≤0.04	%
nitrogen [N]	≤0.02	%

## 4. Waste to disposal

Parameter		Unit
Hazardous waste	0.00E+00	kg
Non-hazardous waste.	3.76E+00	kg

\*Data derived from LCA and not assigned to the impact categories of LCIA

## 5. Additional explanation

- Each LCI includes allocation for scrap recycling as an optional supplementary information [D]. Recycling rate (RR) used in this calculation is 93.1% (calculated based on ISO 20915/JIS Q 20915 and using Japan data from Japan Iron and Steel Federation and Japan Steel Can Recycling Association).
- Scenarios of transport to site follow the PCR.
- Each item (except iron) in table 3 is the maximum value of the standards of the products.
- The average grid power supply of 10 electric power suppliers of Japan in 2014 is used in the LCI calculation for grid electricity.

### 6-1. Supplementary environmental information

Kashima Works and Wakayama Works are certified to ISO 14001.

### 6-2. Regulated hazardous substances

Substance	CAS No.	Reference to standards or regulations
manganese [Mn]	7439-96-5	Industrial Safety and Health Act
copper [Cu]	7440-50-8	Industrial Safety and Health Act
chrominium [Cr]	7440-47-3	Industrial Safety and Health Act
nickel [Ni]	7440-02-0	Industrial Safety and Health Act
molybdenum [Mo]	7439-98-7	Industrial Safety and Health Act
niobium [Nb]	7440-03-1	Industrial Safety and Health Act
vanadium [V]	7440-62-2	Industrial Safety and Health Act
titanium [Ti]	7440-32-6	Industrial Safety and Health Act
nitrogen [N]	7727-37-9	Industrial Safety and Health Act

### 7. Assumptions of secondary data used

We use the IDEA2.1.3 data and steel scrap data from The Japan Iron and Steel Federation (JISF).

### 8. Remarks

#### 1. Additional information

Following Steel grade standards are available in addition to the standards listed on page 1:

##### 1) In Japan

- Steel grade standards: SM490YA, SM490YB, SMA400AW, SMA400BW, SMA490AW, SMA490BW

##### 2) Overseas

- Steel grade standards: ASTM A36, A572 Gr50, A992, EN10025-2 S235JR/J0/J2, S275JR/J0/J2, S355JR/J0/J2/K2, EN10025-4 S460M

#### 2. Change log

Addition of overseas steel grade standards and dimensional standards and updated information on Material composition(table 3) and Regulated hazardous substances(table 6-2).(March 31, 2022)

- January 2024; Modification about allocation method of by-product gases.
- May 2024; Correction of overseas steel grade standards.

- For data quantification, please refer to the PCR and the Rules on Quantification and Declaration.
- Comparative assertion is permitted only when the Rules on Quantification and Declaration are satisfied.  
(Reference URL : <https://ecoleaf-label.jp/regulation/>)