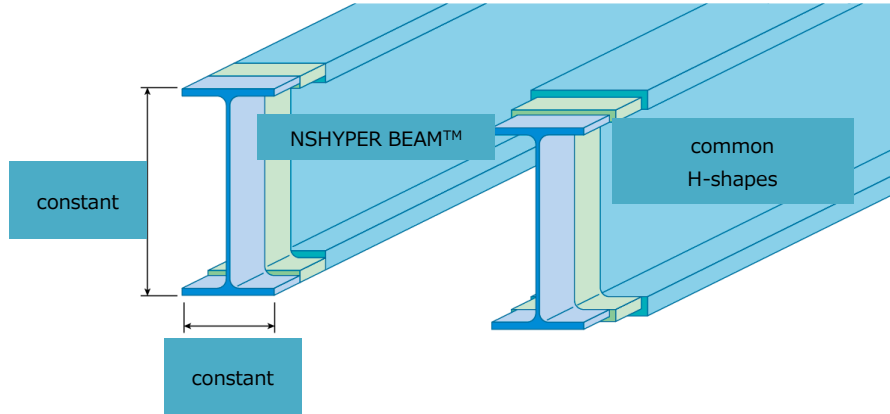


NIPPON STEEL | NIPPON STEEL CORPORATION

NSHYPER BEAM™



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,SN490B,SM400A,SM400B,SM490A,SM490B, SM490YA,SM490YB,SS400,NSYP345B,**NSYP385B**

Type : H-shape

Main sizes(unit:mm,t:thickness)

H400(t 9) × B200(t12)~H1,200(t22) × B500(t40)

※The other available standards and sizes are listed on page 3 (8.Remarks).

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-19003E-E
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-24002
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		1400	2600	kg-CO2eq
Acidification		0.10	1.8	kg-SO2eq
Photochemical ozone		0.65	0.89	kg-C2H4eq

Table Legend

【A1】: Raw mterial 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)

Be sure to refer to “6-1. Supplementary environmental information” for Scope 3 and carbon footprint calculations.

Parameter	stage	Unit	[A1~A3]	[A1]	[A2]	[A3]	[D]
Global warming IPCC2013 GWP100a		kg-CO ₂ eq	2.6E+03	6.3E+02	1.2E+02	1.8E+03	-1.1E+03
Ozone layer destruction		kg-CFC-11eq	2.3E-06	1.7E-07	7.9E-10	2.2E-06	-2.0E-07
Acidification		kg-SO ₂ eq	1.8E+00	5.3E-01	6.7E-02	1.2E+00	-1.7E+00
Photochemical ozone		kg-C ₂ H ₄ eq	8.9E-01	4.8E-03	1.0E-03	8.8E+00	-2.4E-01
Eutrophication		kg-PO ₄ ³⁻ eq	4.1E-02	3.7E-05	7.1E-13	4.1E-02	-2.1E-02

2. Life cycle inventory analysis (LCI)

Parameter	Unit
Non-renewable material resources	9.0E+02 kg
Non-renewable energy resources	3.0E+04 MJ
Renewable material resources	8.9E+02 kg
Renewable primary energy	9.7E+02 MJ
Consumption of freshwater	3.9E+00 m ³

3. Material composition

Material	Unit
iron [Fe]	≥95.51 %
carbon [C]	≤0.26 %
silicon [Si]	≤0.55 %
manganese [Mn]	≤1.65 %
phosphorus [P]	≤0.05 %
sulfur [S]	≤0.05 %
copper [Cu]	≤0.60 %
chrominium [Cr]	≤0.36 %
nickel [Ni]	≤0.50 %
molybdenum [Mo]	≤0.15 %
niobium [Nb]	≤0.05 %
vanadium [V]	≤0.15 %
titanium [Ti]	≤0.04 %
nitrogen [N]	≤0.02 %
aluminium [Al]	≤0.06 %

4. Waste to disposal

Parameter	Unit
Hazardous waste	0.00E+00 kg
Non-hazardous waste.	2.03E+00 kg

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.

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

6-1. Supplementary environmental information

Kashima Works and Wakayama Works are certified to ISO 14001.

Note on Global warming IPCC2013 GWP100a: When purchasers of this product calculate GHG emissions under GHG Protocol Scope 3, Category 1 for their organization, or when calculating the carbon footprint of products manufactured using this product, they must check the following URL:

<https://www.nipponsteel.com/en/product/cfp/certificate.html>

(The content of the above URL is not subject to EPD verification.)

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
aluminium [Al]	7429-90-5	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: SN400C, SN490C, SMA400AW, SMA400BW, SMA490AW, SMA490BW

2) Other than Japan

- Steel grade standards: ASTM A36, A572 Gr50, A992, EN10025-2 S235JR/J0/J2, S275JR/J0/J2, S355JR/J0/J2/K2, EN10225-2 S355MLO

2. Change log

- 3/17/2020 The spec of main sizes has been changed by adding larger sizes(MEGA NSHYPER BEAM™)

- 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. Addition Japanese steel grade NSYP385B.

- April 2026; Additional explanatory notes added to "6-1. Supplementary environmental information".

- 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/>)



SuMPO EPD

Type III Environmental Declaration (EPD)

Registration number : JR-AJ-19003E-E

Japan EPD Program by SuMPO

Sustainable Management Promotion Organization

14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan

<https://ecoleaf-label.jp>

Registration number : JR-AJ-19003E-E