



# NIPPON STEEL WELDING & ENGINEERING Company Profile



NIPPON STEEL WELDING & ENGINEERING CO.,LTD.

## Outline of NIPPON STEEL WELDING & ENGINEERING CO., LTD.

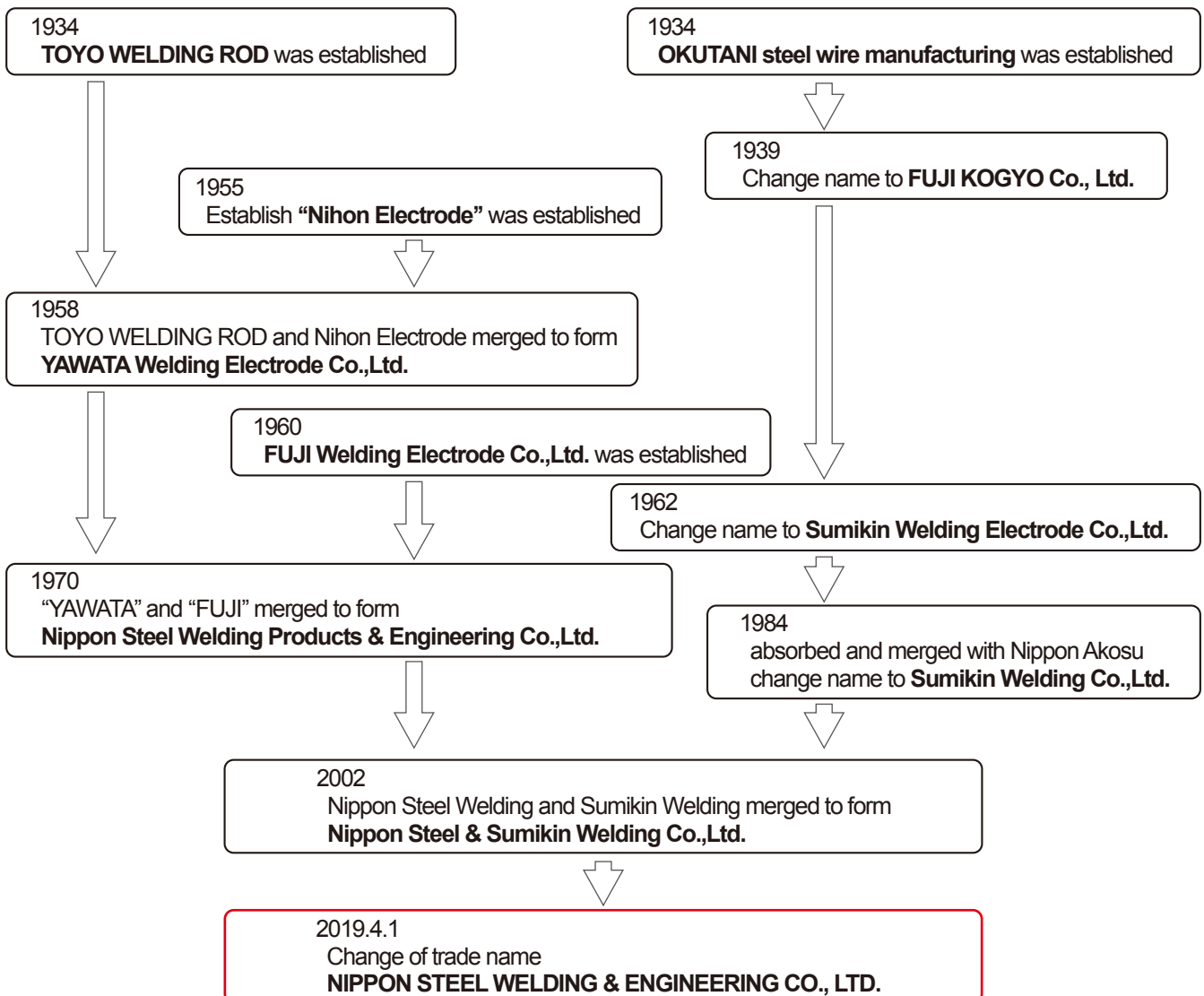
We, NIPPON STEEL WELDING & ENGINEERING CO., LTD. are a subsidiary company of NIPPON STEEL CORPORATION which is one of the world's big steel maker.

Over 80 years, we supply the break through welding consumables used for FCAW, SMAW, SAW, GMAW, GTAW and various welding equipment included plasma welding to match and enhance your welding skill.

We are the first and only Japanese manufacturer to mass produce the Seamless Flux Cored Wire since 1981, which has excellent performance and quality for low temperature and high-tensile strength use.

We promise to provide appropriate solutions and create a breakthrough for your welding situation.

- [ Date of Founded ] July 1, 2002
- [ Head Office ] Shingu Bldg., 4-2 Toyo 2-chome, Koto-ku, Tokyo 135-0016 JAPAN  
<URL> <https://www.weld.nipponsteel.com>
- [ Common Stock ] ¥ 2,100 million
- [ Shareholders ] NIPPON STEEL CORPORATION— 100%
- [ Scope of Business ]
  - ◎ Manufacturing and sales of welding materials
  - ◎ Manufacturing and sales of welding machines & equipment
  - ◎ Consulting services on welding specifications & procedures
  - ◎ Manufacturing and sales of plasma welding machines
  - ◎ Manufacturing and sales of metal tube optical fiber cables and others
- [ No. of Employees ] About 500 as of Mar. 2023
- [ The history of company ]



## Organization · Address

### General Administration Division

Purchasing Division  
Budget & Account Division  
Sales Division  
Overseas Sales Division  
Quality Control Division

Quality Control Dept.  
Technical Support Dept.

#### Head office

4-2, Toyo 2-chome, Koto-ku, Tokyo 135-0016 JAPAN  
【Tel】 81-3-6388-9000 【Fax】 81-3-6388-9160  
<URL> <https://www.weld.nipponsteel.com>

### Production Engineering Division

Production Engineering Dept.  
Equipment Planning Dept.  
Intellectual Property Dept.

6-1, Higashinarashino 7-chome, Narashino City, Chiba Pref. 275-0001, JAPAN  
【Tel】 81-47-479-1346 【Fax】 81-47-479-4474

### R & D Division

In Steel Research Laboratories, Technical Research & Development Bureau,  
NIPPON STEEL CORPORATION  
20-1 Shintomi, Futtsu-City, Chiba Pref. 293-8511 JAPAN  
【Tel】 81-439-80-2621 【Fax】 81-439-80-2748

### Narashino Plant

6-1, Higashinarashino 7-chome, Narashino City, Chiba Pref. 275-0001, JAPAN  
【Tel】 81-47-479-1171 【Fax】 81-47-475-6430

### Hikari Plant

2-1, Asae 4-chome, Hikari City, Yamaguchi Pref. 743-0021, JAPAN  
【Tel】 81-47-833-3390 【Fax】 81-833-71-3394

### Narashino Operating Division

Machinery & Engineering Unit  
Plasma Welding Machinery  
Optical Fiber Unit

6-1, Higashinarashino 7-chome, Narashino City, Chiba Pref. 275-0001, JAPAN

【Tel】 81-47-479-4111 【Fax】 81-47-479-1434

【Tel】 81-47-479-4138 【Fax】 81-47-479-2968

【Tel】 81-47-479-1179 【Fax】 81-47-479-4371

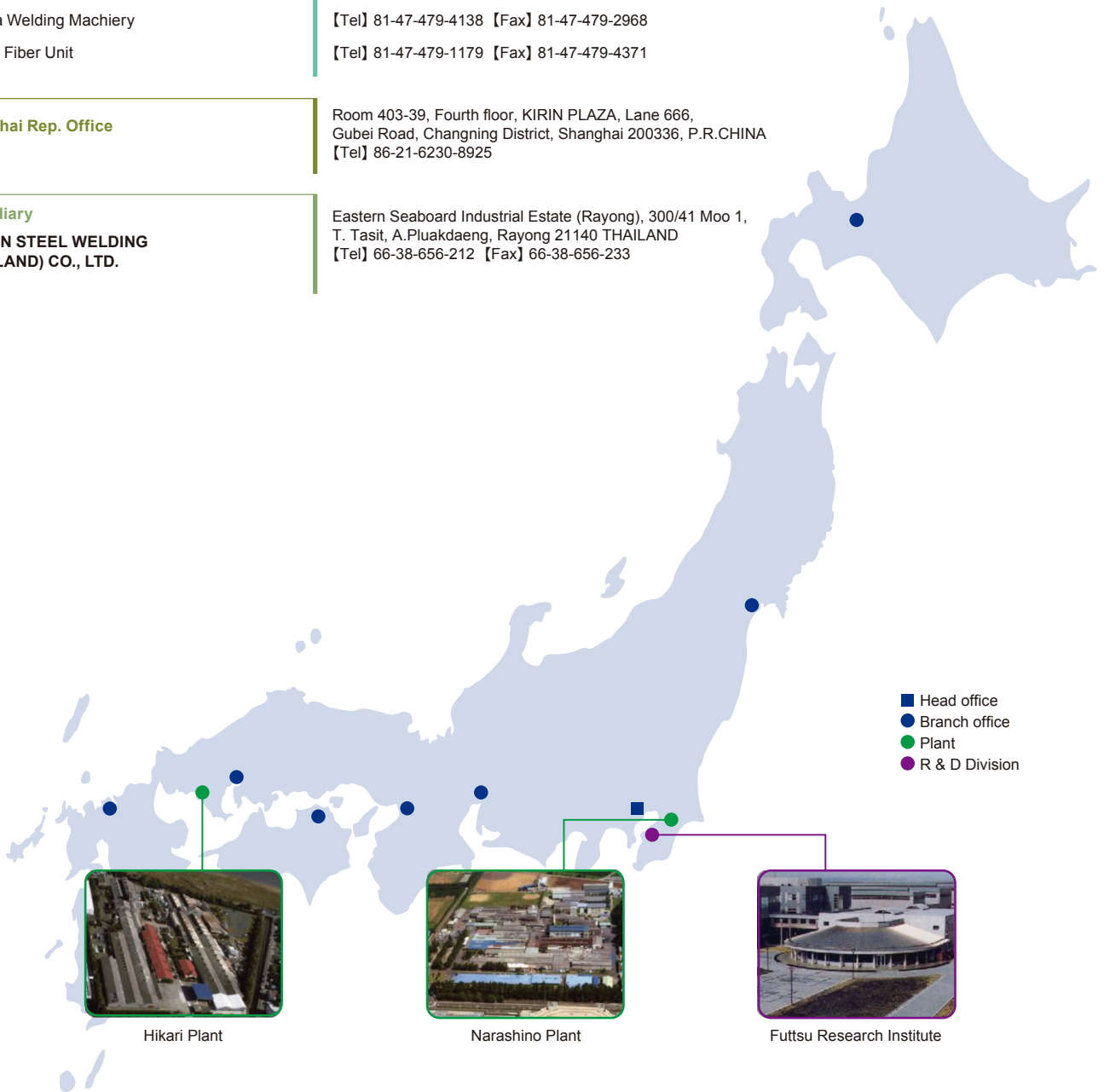
### Shanghai Rep. Office

Room 403-39, Fourth floor, KIRIN PLAZA, Lane 666,  
Gubei Road, Changning District, Shanghai 200336, P.R.CHINA  
【Tel】 86-21-6230-8925

### Subsidiary

**NIPPON STEEL WELDING  
(THAILAND) CO., LTD.**

Eastern Seaboard Industrial Estate (Rayong), 300/41 Moo 1,  
T. Tasit, A.Pluakdaeng, Rayong 21140 THAILAND  
【Tel】 66-38-656-212 【Fax】 66-38-656-233



- Head office
- Branch office
- Plant
- R & D Division



Hikari Plant



Narashino Plant



Futtsu Research Institute

**[1]Welding Materials**

For mild steel, high tensile strength steel, sulfuric acid resistant steel, low temperature service steel, fire-resistant steel, heat-resistant steel, stainless steel, hard facing, cast iron and special alloy.

- ◎Shielded metal arc welding electrodes
- ◎Gas metal arc welding wires
- ◎Flux Cored welding wires
- ◎Submerged arc welding wires and fluxes
- ◎Other welding materials

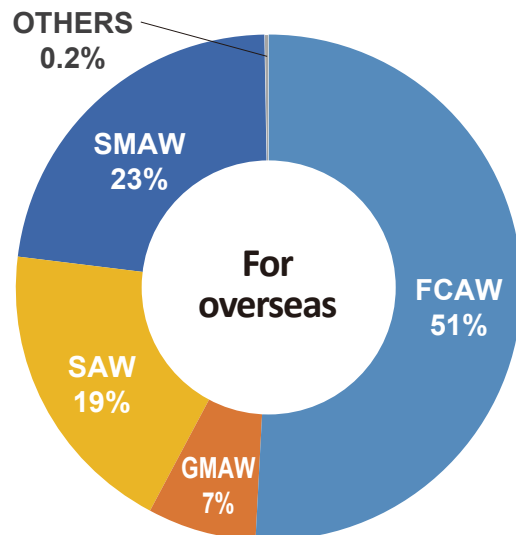
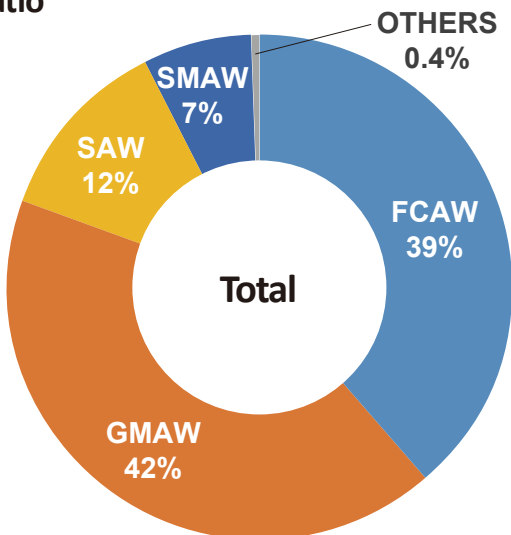


**Production Plants**

Item	Narashino Plant	Hikari Plant	Thailand Plant <sup>1)</sup>
<b>SMAW</b> Shielded metal arc welding electrodes		●	
<b>GMAW</b> Gas metal arc welding wires	●	●	●
<b>FCAW (seamless type)</b> Flux cored welding wires	●	●	
<b>FCAW (folded type)</b> Flux cored welding wires	●		
<b>FCAW(seamless type) for Stainless steel</b> Flux cored welding wires		●	
<b>FCAW(folded type) for Stainless steel</b> Flux cored welding wires	●		
<b>SAW(Wire)</b> Submerged arc welding wires	●		
<b>SAW(Flux)</b> Submerged arc welding fluxes	●		
<b>Wire and Flux for electroslag welding</b>	●		
<b>Wire for electrogas welding</b>	●		

<Note> 1) =NIPPON STEEL WELDING (THAILAND) CO., LTD.

**Sales ratio**



## [2] Advantages of Our Welding Consumables

### • For Offshore Structures

#### ① Flux cored welding wires(seamless type)

<Typical products>

Brand Name	Application		AWS A5.20/A5/28/5.29 Classification
	Y.S.(MPa)	Temp.	
SF-1E	375	-20°C	E71T-1C
SF-3M	375	-40°C	E71T-9C-JH4
SF-36E	400	-60°C	E81T1-K2C-H4
SF-3A	420	-40°C	E71T-9M-JH4
SM-3A	400	-40°C	E70C-GM H4
SF-3E	420	-40°C	E81T1-GC-H4
SF-3AM	460	-60°C	E81T1-Ni1M-H4
SF-47E	460	-60°C	E81T1-Ni1C-JH4
SM-47A	460	-60°C	E80C-G H4
SF-50E	500	-60°C	E91T1-Ni2C-JH4
SM-80A	690	-40°C	E110C-G-H4
SF-80A	690	-40°C	E111T1-GM-H4

#### ② Shielded metal arc welding electrodes

<Typical products>

Brand Name	Uranami Welding	Application		AWS A5.1 AWS A5.5 Classification
		Y.S.(MPa)	Temp.	
NITTETSU-56	✓	375	-40°C	E7016
NITTETSU L-60W	✓	460	-40°C	E8016-G
L-55SN	-	400	-60°C	E7016-G
L-57SN	-	420	-60°C	E8016-G
L-60LT	-	500	-60°C	E9016-G
L-80SN	✓	690	-60°C	E11016-G

#### ③ Submerged arc welding wires and fluxes

<Typical products>

Brand Name (flux / wire)	Application		Polarity	AWS A5.17/5.23 Classification
	Y.S.(MPa)	Temp.		
NF-1 <sup>1)</sup> /Y-D	375	-20°C	AC	F7A4-EH14, F7P2-EH14
NB-55E/Y-D	400	-60°C	AC/DCEP	F7A8-EH14
NB-55/Y-DS	400	-60°C	AC/DCEP	F7A8-EH14, F7P8-EH14
NB-55/Y-CMS	460	-60°C	AC/DCEP	F8A8-EA4-A4, F8P8-EA4-A4
NB-250H/Y-204B	500	-60°C	AC/DCEP	F9A8-EG-G, F9P8-EG-G
NB-250J/Y-80J	690	-60°C	AC/DCEP	F11A10-EG-G

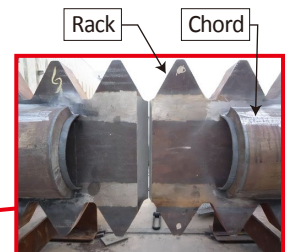
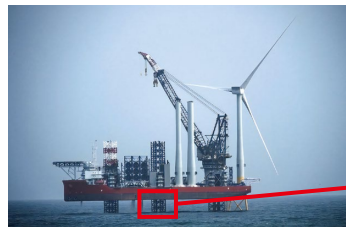
<Note> 1) Fused type with excellent slag removal



#### ④ YP690N/mm<sup>2</sup> Steel Grade for offshore LEG

<Typical products>

Welding Process	Brand Name	Temp.	AWS Classification
SMAW	L-80SN	-60°C	AWS A5.5 E11016-G
FCAW	SF-80A	-40°C	AWS A5.29 E111T1-GM-H4
	SM-80A	-40°C	AWS A5.28 E110C-G-H4
SAW	NB-250J/Y-80J	-60°C	AWS A5.23 F11A10-EG-G



### • For Shipbuilding

#### ① Flux cored welding wires

<Typical products>

Welding Process	Brand Name	Application	AWS A5.20/5.26/5.29 Classification
FCAW	SF-1	D grade steel	E71T-1C-H4
	SF-3	E grade steel	E71T-12C-H4
	SF-36E	LPG tank	E81T1-K2C-H4
	SF-47E	EH47 grade steel	E81T1-Ni1C-JH4
EGW	EG-3	EH40 grade steel	EG72T-G
	EG-47T	EH47 grade steel	-
FCAW	SF-2120	Duplex stainless steel for chemical tanker	-
	FC-9NI	9% Ni steel's LNG tank	-

#### ② Submerged arc welding wires and fluxes

<Typical products>

Brand Name	Application	AWS A5.23 Classification
NSH-50M(surface flux) NSH-1RM(backing flux) Y-DL(2~4poles)	D grade steel Panel line for one-side welding process	-
NB-55 (flux) / Y-CMS(wire)	EH47 used in shear-strakes etc. of containerships	F8A8-EA4-A4
NB-55 (flux) / Y-DM(wire)	LPG tank (one layer on each side)	F9A8-EA3-G



## Products

### • For Plant, Energy

#### 9% Ni steel's LNG tank

Welding Process	Brand Name	AWS A5.11/5.14 Classification
SMAW	YAWATA WELD B(M)	ENiCrFe-4
	NITTETSU WELD 196	ENiMo-9
	NI9	ENiCrMo-6
SAW	NITTETSU FLUX 10H (flux) / NITTETSU FILLER 196 (wire)	ERNiMo-9 Mod.
	BF-276 (flux) / Y-276 (wire)	ERNiCrMo-4
GTAW	NITTETSU FILLER 196	ERNiMo-9
FCAW	FC-9NI	-



### • For Automobile

#### Gas metal arc welding wires (for Ar-CO<sub>2</sub> shielding gas)

<Typical products>

Brand Name	Application
YM-TX	Improve the electrodeposition coating ability since ultra low slag
YM-24T	No easy to burn-through in lap welding
YM-28	Standard welding product for automobile
YM-28S	Standard welding product for automobile
YM-160	For ferritic stainless steels used of exhaust manifold



### • For Boiler Tube

Best matching quality is obtained NIPPON STEEL CORPORATION's advanced heat-resistant boiler tubes and corrosion-resistant steel for coal-fired power plant.



#### ① S-TEN<sup>TM</sup> 1)

#### (NIPPON STEEL CORPORATION's Sulfuric Corrosion-Resistant Steel for exhaust system)

<Typical products>

Welding Process	Brand Name	Classification
SMAW	ST-16M	NSWE's original
FCAW	SF-1ST	NSWE's original
GTAW	YT-1ST	NSWE's original

Corrosion resistance test of joint metal ( 10.5% hydrochloric acid immersion test(condition:80°C×24hr) )

FCAW	Macroscopic cross section(base metal: S TEN-1)
SF-1ST	
Conventional FCW	

#### ② Heat resisting Steel

<Typical products>

Steel Grade	Welding Process	Brand Name	Note
2.25Cr-1.6W-V-Nb	SMAW	N-HCM2S	-
	GTAW	YT-HCM2S	-
SUPER 304H <sup>TM</sup> 2) (ASTM S30432)	GTAW	YT-304H	-
		T-304H	approved by TUV
HR3C <sup>3)</sup> (ASTM TP310HCbN)	GTAW	YT-HR3C	-
		T-HR3C	approved by TUV

#### <Notes>

- 1) S-TEN what is a Sulfuric Corrosion-Resistant Steel for exhaust system is a trademark of NIPPON STEEL CORPORATION.
- 2) SUPER 304H what is a Austenitic Heat-Resistant Stainless Steel for super-heater is a trademark of NIPPON STEEL CORPORATION.
- 3) HR3C is a Austenitic Heat and Corrosion-Resistant Stainless Steel.

### • For Pressure Vessel

#### ① Typical products for SA387 Gr.11 class ; 1.25Cr-0.5Mo

Welding Process	Brand Name	ASTM
SAW	NB-1CM(Flux) / Y-511S(Wire)	SFA5.23 F9P2-EB2-B2
SMAW	CM-1A	SFA5.5 E8016-B2
GMAW	YM-511A	SFA5.28 ER80S-G
GTAW	YT-511	SFA5.28 ER80S-G

#### ② Typical products for SA387 Gr.22 class ; 2.25Cr-1Mo

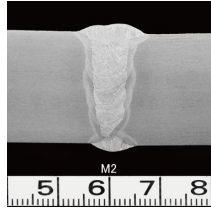
Welding Process	Brand Name	ASME
SAW	NB-2CM(Flux) / Y-521(Wire)	SFA5.23 F9P2-EB3-B3
SMAW	CM-2A	SFA5.5 E9016-B2
GMAW	YM-521A	SFA5.28 ER90S-G
GTAW	YT-521	SFA5.28 ER90S-G

## • For Pipeline

<Typical products>

Steel Grade			Site Welding				Shop Welding	
			SMAW		GMAW	FCAW	SAW (Double V groove)	
APL 5L	Y.P. MPa	T.S. MPa	Root Pass (Uranami welding)	Fill and Cover Pass				
X52	360	460	NITTETSU-56	NITTETSU L-55SN	YM-X70P	SF-3AM	NB-55L / Y-D	NF-5000B / Y-D
X56	385	490						
X60	415	515						
X65	450	535	NITTETSU L-60W	NITTETSU L-59	YM-X80P	SF-3AM or SF-50A	NB-55L / Y-DM3	NF-5000B / Y-D / Y-DM
X70	485	570		NITTETSU L-60LT				
X80	555	625	L-80SN	L-74S or L-80SN		SF-50A	NB-250H / Y-204B	NF-5000B / Y-80M / YM-80C

※ Brand name's NB and NF are welding fluxes, Brand name's Y and YM are welding wires.



Macroscopic cross section of narrow gap welding with YM-X80P on site.



## • For Construction

A high-quality is obtained with many supply records indomestic famous buildings such as Tokyo Sky Tree™

### ① Gas metal arc welding wires (CO<sub>2</sub> shielding)

<Typical products>

Steel Grade	Brand Name	AWS Classification	JIS Classification
490N/mm <sup>2</sup>	YM-26	A5.18 ER70S-G	Z3312 YGW11
550N/mm <sup>2</sup>	YM-55C	A5.28 ER80S-G	Z3312 YGW18
590N/mm <sup>2</sup>	YM-60C	A5.28 ER80S-G	Z3312 G59JA1UC3M1T
780N/mm <sup>2</sup>	YM-80C	A5.28 ER110S-G	Z3312 G78A2UCN5M3T

### ② Flux cored welding wires(seamless)

<Typical products>

Steel Grade	Brand Name	AWS Classification	JIS Classification
490N/mm <sup>2</sup>	SF-1	A5.20 E71T-1C-H4	Z3313 T49J0T1-1CA-UH5
550N/mm <sup>2</sup>	SF-55	A5.29 E81T1-GC-H4	Z3313 T550T1-1CA-G-UH5
590N/mm <sup>2</sup>	SF-60	A5.29 E81T1-GC-H4	Z3313 T59JT1-1CA-N2M1-UH5
	SF-60T	A5.29 E81T1-GC-H4	Z3313 T59J1T1-1CA-G-UH5
780N/mm <sup>2</sup>	SF-80AM	A5.29 E111T1-K3M-H4	-

### ③ Submerged arc welding and Electroslag welding

Box column and built-up H beam

<Typical products>

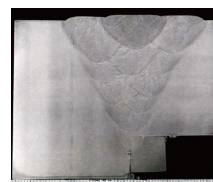
Steel Grade	Box Column			Built-up H beam on SAW
	One Pass on SAW	Multi Pass on SAW	Electroslag Welding	
490N/mm <sup>2</sup>	NSH-60S / Y-DL JIS Z3183 S582-H	NSH-60 / Y-DL JIS Z3183 S582-H	YF-15I / YM-55HF JIS Z3353 YES52/FS-FG3	NF-800R / Y-D JIS Z3183 S502-H
550N/mm <sup>2</sup>	NSH-60S / Y-DM3L JIS Z3183 S621-H1	NSH-60 / Y-DM3L JIS Z3183 S624-H4	YF-15I / YM-55HF JIS Z3353 YES52/FS-FG3	NF-800R / Y-DM JIS Z3183 S582-H
590N/mm <sup>2</sup>	NSH-60S / Y-DL-HL JIS Z3183 S621-H4	NSH-60 / Y-DL-HF JIS Z3183 S624-H4	YF-15I / YM-60E JIS Z3353 YES62/FS-FG3	NF-800R / Y-DM JIS Z3183 S582-H

※ Brand name's NSH™, YF and NF are welding fluxes, Brand name's Y and YM are welding wires.

※ NSH is a trademark of NIPPON STEEL WELDING & ENGINEERING CO.,LTD.



High heat input SAW (80mm)  
NSH-60S / Y-DL (One pass)



High heat input SAW (80mm)  
NSH-60 / Y-DL (Multi pass)



## Products

### • For Bridge

Weathering steel  
<Typical products>

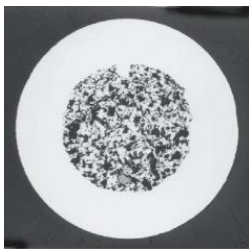
Welding Process	Steel Grade	Brand Name	AWS Classification	JIS Classification
FCAW	490N/mm <sup>2</sup>	SF-50W	-	Z3320 T49J0T1-1CA-NCC1-UH5
		SM-50FW	-	Z3320 T49J0T1-0CA-NCC1-UH5
	570N/mm <sup>2</sup>	SF-60W	A5.29 E81T1-W2C-H4	Z3320 T57J1T1-1CA-NCC1-UH5
		SM-60FW	-	Z3320 T57J1T1-0CA-NCC1-UH5
SAW	490N/mm <sup>2</sup>	NF-820 / Y-CNCW	-	Z3183 S50J2-AW1
		YF-15B / Y-CNCW	-	Z3183 S50J2-AW1



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### • For Stainless steel

A Flux cored arc welding wire is used for high efficiency in stainless steel welding.  
We provide you the Seamless Flux cored wire for stainless steel "SF-308L", "SF-309L" and "SF-316L" etc.



Cross-section of wire



Appearance of weld bead  
SF-308L

#### ① Austenitic Stainless Steel

Welding Process	Brand Name	AWS Classification
FCAW	SF-308L	A5.22 E308LT0-1
	SF-309L	A5.22 E309LT0-1
	SF-309MoL	A5.22 E309LMoT0-1
	SF-316L	A5.22 E316LT0-1
SMAW	S-308L·R	A5.4 E308L-16
	S-309L·R	A5.4 E309L-16
	S-309ML·R	A5.4 E309LMo-16
	S-316L·R	A5.4 E316L-16

#### ② Duplex Stainless Steel

Application	Welding Process	Brand Name	AWS Classification
Lean Duplex Stainless Steel NSSC2120(UNS S82122) ASTM UNS S32101 ASTM UNS S32304	SMAW	S-2120·R	
	FCAW	SF-2120	
22%Cr Duplex Stainless Steel (ASTM UNS S31803) JIS SUS329J3L	SMAW	S-DP8	A5.4 E2209-16
	GTAW	YT-DP8	A5.9 ER2209
	FCAW	SF-329J3LP SF-DP8	A5.22 E2209T1-1 A5.22 E2209T0-1
25%Cr Duplex Stainless Steel (ASTM UNS S39226) JIS SUS329J4L	SAW	BF-30 / Y-DP8	-
	SMAW	S-DP3	-
	GTAW	YT-DP3	-
25%Cr Super Duplex Stainless Steel (ASTM UNS S39274)	FCAW	SF-DP3	-
	SAW	BF-30 / Y-DP3	-
	SMAW	S-DP3W	-
	GTAW	YT-DP3W	-
	FCAW	SF-DP3W	A5.22 E2594T0-1

## Customer List

#### 【Offshore】

China	CIMC Raffles Offshore Engineering (QMW) Offshore Oil Engineering (COOEC) Qingdao McDermott Wuchuan ZPMC
Denmark	Bladt Industries A/S
Germany	EEW Group
Indonesia	PT McDermott Indonesia
Singapore	Seatrium

#### 【Ship Building】

China	CSSC group
Japan	Imabari Shipbuilding Japan Marine United Kawasaki Heavy Industries Mitsubishi Heavy Industries Mitsui Engineering & Shipbuilding
South Korea	Daewoo Shipbuilding & Marine Engineering

#### 【Line Pipe】

Japan	NIPPON STEEL CORPORATION
Saudi Arabia	National Pipe Company

#### 【Plant, Energy】

Japan	Hitachi Zosen IHI TOYO Kanetsu
South Korea	SK ecoplant
Thailand	THAI NIPPON STEEL ENGINEERING & CONSTRUCTION CORPORATION, LTD.

#### 【Automotive】

Japan	HONDA Mazda TOYOTA
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#### 【Building & Bridge Construction】

Japan	KAWADA Industries KOMAIHALTEC Yokogawa Bridge
South Korea	Dongsung Heavy Industry Co.,LTD.

#### 【Construction Machinery】

Japan	Hitachi Construction Machinery KOMATSU Sumitomo Construction Machinery Tadano
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**Warning!**

Fumes and gas may be hazardous to your health. Please take appropriate preventive measures such as the implementation of ventilation as well as wearing a protector for breathing. Arc light is harmful to the eyes and skin. Please use appropriate shielding measures. Please do not touch anything where electricity is activated. It may cause death.

**Request to Customers**

- 1 Various data of distinctive features such as welding materials, deposited metal, weld metal, etc. shown in this catalog are meant to explain the representative properties and performance of the products and are not to be taken as a guarantee except those which are specified clearly as "Specification".
- 2 In regard to the properties of welded structures, please be careful since design of structures, chemical compositions of steel plates, construction method, welding conditions, ability of constructor, etc. will affect the results.
- 3 Please understand that we are not able to take responsibility for damages caused by the misuse of the technical information written in this catalog.

**NIPPON STEEL | NIPPON STEEL WELDING & ENGINEERING CO.,LTD.**<https://www.weld.nipponsteel.com>**Head Office**

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**R&D Division**

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**Plasma Welding Machinery Unit**

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