

# **Technology Development Solution**

From Japan to the world

### Stainless Steel Plates & Sheets

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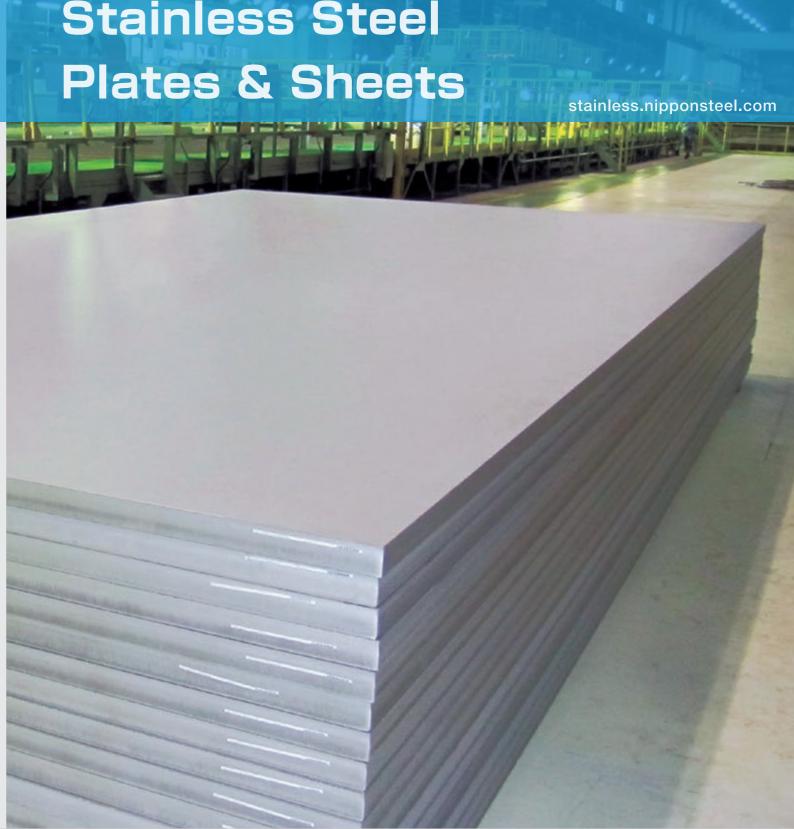
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NIPPON STEEL Stainless Steel Corporation

### **Stainless Steel Plates & Sheets**

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### Important notice

The technical information in this document simply describes typical characteristics and performance of the product and does not provide any guarantees except for the items clearly stated as specifications or standard values.

Note that NSSC takes no responsibility whatsoever for damage resulting from user failure to observe the instructions presented in this document or improper handling of the product.

The information presented in this document is subject to change without notice. Please contact the relevant division for the latest information.

No part of this document may be copied or reproduced in any form without the consent of NSSC.

### **Stainless Steel Plates & Sheets**

## **Features**

Our abundant sizes and superior quality should lead you to the new horizon of high cost performance.

## Wide Range of Products covering Large-Size Plates

We have established technologies for extra large-size plates with
the state-of-the-art production lines including a quarto rolling mill.
Our large plates will enable you to curtail the welding process in fabrication and,
as a result, they contribute to reducing your cost and time.
 Excellent flatness of our large plate allows for easy fabrication and welding for you.

# High Performance Corrosion Resistance, with Abundant Grades for Various Applied Circumstances

 Up-to-date equipment, such as a heat treatment furnace, roller quencher, spray type cooling system, and so on, provide complete solid solution treatments for steel products.
 Moreover, those facilities produce a wide range of grades designed for use

in various kinds and levels of corrosive environments.

Authentic technical data on each product are available anytime for your

- 3 Quality in Uniformly Highest Level
  - Superior technology as well as extensive quality control from steelmaking to finishing assure the stable production of stainless steel plates in uniformly of excellent quality.
- 4 Prompt Delivery

reference.

- An exclusive rolling mill is available at all times for the production of stainless steel plates.

Moreover, an unrivaled volume production system and strict quality control program assure smooth production and on-time delivery.

- 5 Marvelously Aesthetic Surface Finishes
  - We apply the process of surface finishing to our products by pickling or buff-polishing.

We would sincerely like you to enjoy the marvelously aesthetic surface finishes of our products.

- Levels of finishing can be adjusted according to your requirements.

Stainless Steel Plates & Sheets

Application Examples

## **Application Examples**



Seawater Pump (S31803, S32760, S32750)



Desalination Plant (S32101, S82122, NSSC2120, S32304, S31803, S32205, S32750, S31254, NSSC270)



Water supply plant (304, 316, SUS329J4L)



Floodgate (SUS304, SUS821L1, NSSC2120, SUS316L, SUS323L)

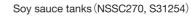


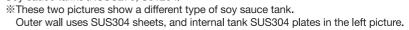
Drainage pump station, Dust remover (SUS304, SUS821L1, NSSC2120, SUS316L, SUS323L)



Dam intake tower, High-pressure gate (SUS304, SUS821L1, NSSC2120, SUS316L, SUS323L)

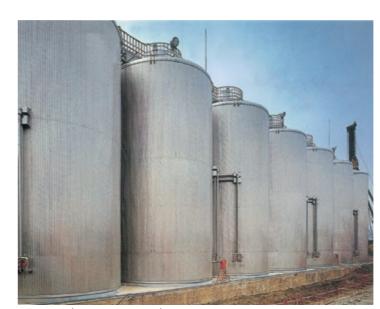








Umihotaru Monument (NSSC270)



Beer tanks (304 #400 polished)

\*\*Outer wall uses SUS304 sheets, and internal tank SUS304 plates finished by high-quality polishing.



Hot water tanks (SUS444, NSSC190L)

Stainless Steel Plates & Sheets

Application Examples

## Application Examples



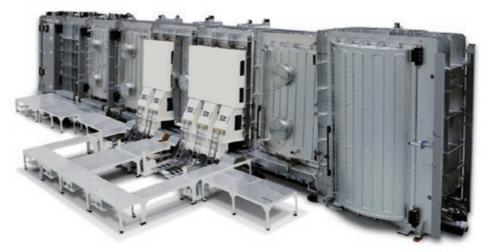
Chemical tanker (NSSC2120, 316L, 316LN, S31803, e.t.c.)



LNG satellite (304)



Petrochemical plant (304, 316L, S31803, e.t.c.)



Display Manufacturing Equipment (304)



Nitric acid tank(SN-1)

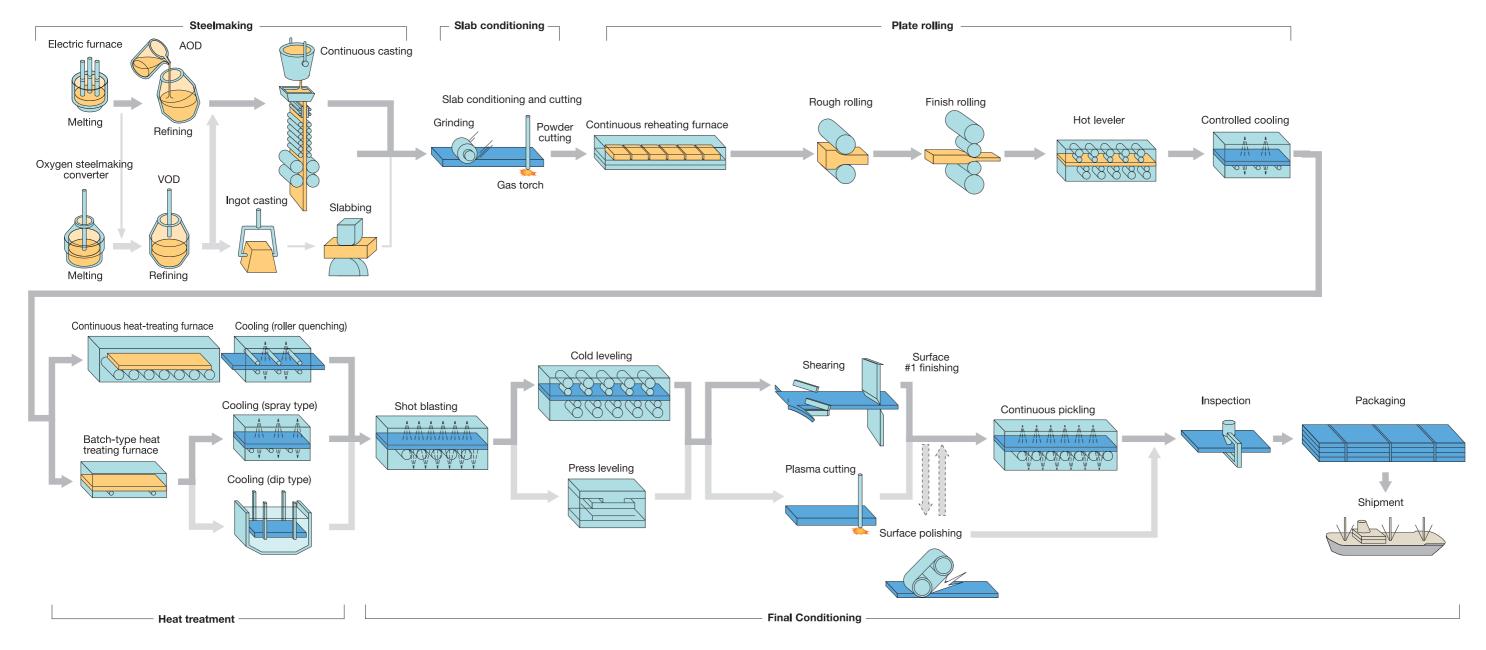
Stainless Steel Plates & Sheets Manufacturing Flow

## Manufacturing Flow

VOD: Vacuum Oxygen Decarburization

AOD: Argon Oxygen Decarburization
RQ: Roller Quench





















Electric furnace Continuous casting

Plate rolling

Heat treating furnace

Cold leveling

Plasma cutting

Continuous pickling

Production

Stainless Steel Plates & Sheets

## Available Product Grades

		Grade			Chemical Composition(%)									Mechanical Properties						
Stainless Steel	ASTM	EN	Symbol of Grades	Others										Tensile Properties(1MP			Hard	ness	D 17 .	
Group	(A240M)	Number	(NSSC)	(JIS)	С	Si	Mn	P	S	Ni	Cr	Мо	Others	Yield Strength MPa	Tensile Strength MPa	Elongation %	HBW	HRBW	Bend Test	
	304	(1.4301)		(SUS304)	≦0.07	≦0.75	≦2.00	≦0.045	≦0.030	8.0/10.5	17.5/19.5	_	N≦0.10	≧205	≧515	≧40	≦201	<b>≦</b> 92	_	
	304H				0.04/0.10	≦0.75	≦2.00	≦0.045	≦0.030	8.0/10.5	18.0/20.0	_		≧205	≧515	≧40	≦201	<b>≦</b> 92	_	
	304L	(1.4307)		(SUS304L)	≦0.030	≦0.75	≦2.00	≦0.045	≦0.030	8.0/12.0	17.5/19.5	_	N≦0.10	≧170	≧485	≧40	≦201	≦92	_	
	304N	(1.4315)		(SUS304N1)	≦0.08	≦0.75	≦2.00	≦0.045	≦0.030	8.0/10.5	18.0/20.0	_	N:0.10/0.16	≧240	≧550	≧30	≦217	<b>≦</b> 95	_	
	304LN	(1.4311)		(SUS304LN)	≦0.030	≦0.75	≦2.00	≦0.045	≦0.030	8.0/12.0	18.0/20.0	_	N:0.10/0.16	≧205	≧515	≧40	≦217	≦95	_	
	309S	(1.4950)		(SUS309S)	≦0.08	≦0.75	≦2.00	≦0.045	≦0.030	12.0/15.0	22.0/24.0	_	-		≧515	≧40	≦217	≦95	_	
	310S	(1.4951)		(SUS310S)	≦0.08	≦1.50	≦2.00	≦0.045	≦0.030	19.0/22.0	24.0/26.0	_		≧205	≧515	≧40	≦217	<b>≦</b> 95	_	
	316	(1.4401)		(SUS316)	≦0.08	≦0.75	≦2.00	≦0.045	≦0.030	10.0/14.0	16.0/18.0	2.00/3.00	N≦0.10	≧205	≧515	≧40	≦217	<b>≦</b> 95	_	
	316L	(1.4404)		(SUS316L)	≦0.030	≦0.75	≦2.00	≦0.045	≦0.030	10.0/14.0	16.0/18.0	2.00/3.00	N≦0.10	≧170	≧485	≧40	≦217	<b>≦</b> 95	_	
	316H				0.04/0.10	≦0.75	≦2.00	≦0.045	≦0.030	10.0/14.0	16.0/18.0	2.00/3.00		≧205	≧515	≧40	≦217	≦95	_	
	316LN	(1.4406)	(NSSC 316LN)	(SUS316LN)	≦0.030	≦0.75	≦2.00	≦0.045	≦0.030	10.0/14.0	16.0/18.0	2.00/3.00	N:0.10/0.16	≧205	≧515	≧40	≦217	<b>≦</b> 95	_	
Austenitic Steels	317L	(1.4438)		(SUS317L)	≦0.030	≦0.75	≦2.00	≦0.045	≦0.030	11.0/15.0	18.0/20.0	3.0/4.0	N≦0.10	≧205	≧515	≧40	≦217	≦95	_	
	317LN	(1.4434)		(SUS317LN)	≦0.030	≦0.75	≦2.00	≦0.045	≦0.030	11.0/15.0	18.0/20.0	3.0/4.0	N:0.10/0.22	≧240	≧550	≧40	≦217	≦95	_	
	321	(1.4541)		(SUS321)	≦0.08	≦0.75	≦2.00	≦0.045	≦0.030	9.0/12.0	17.0/19.0	_	N≦0.10 Ti:5×(C+N) /0.70	≧205	≧515	≧40	≦217	<b>≦</b> 95	_	
	347	(1.4550)		(SUS347)	≦0.08	≦0.75	≦2.00	≦0.045	≦0.030	9.0/13.0	17.0/19.0	_	Nb:10×C/1.00	≧205	≧515	≧40	≦201	<b>≦</b> 92	_	
	N08904 (904L)	(1.4539)		(SUS890L)	≦0.020	≦1.00	≦2.00	≦0.045	≦0.035	23.0/28.0	19.0/23.0	4.00/5.00	N≦0.10 Cu:1.0/2.0	≧220	≧490	≧35	_	<b>≦</b> 90	_	
	S31254	(1.4547)	(NSSC 270)		≦0.020	≦0.80	≦1.00	≦0.030	≦0.010	17.5/18.5	19.5/20.5	6.0/6.5	N:0.18/0.25 Cu:0.50/1.00	≧310	≧655	≧35	≦223	≦96	_	
	N08367				≦0.030	<b>≦1.00</b>	≦2.00	≦0.040	≦0.030	23.5/25.5	20.0/22.0	6.0/7.0	6.0/7.0 N:0.18/0.25 Cu≦0.75		≧655	≧30	≧241	_	_	
	N08926	(1.4529)			≦0.020	≦0.50	≦2.00	≦0.030	≦0.010	24.0/26.0	19.0/21.0	6.00/7.00	6.00/7.00 N:0.15/0.25 Cu:0.50/1.50		≧650	≧35	_	_	_	
	S30616		(SN-1)		≦0.020	3.9/4.7	<b>≦</b> 1.50	≦0.030	≦0.015	13.0/15.5	16.5/18.5	≦0.50	Cu≦0.40 Nb:0.30/0.70	≧245	≧590	≧40	≦241	≦100	_	
	S31060		(AH-4)		0.05/0.10	≦0.50	<b>≦</b> 1.00	≦0.040	≦0.030	10.0/12.5	22.0/24.0	_	N:0.18/0.25 Ce+La:0.025/0.070 B:0.001/0.010	≧280	≧600	≧40	≦217	<b>≦</b> 95	_	
	S34751		(347AP)		0.005/0.020	<b>≦1.00</b>	≦2.00	≦0.045	≦0.030	9.0/13.0	17.0/19.0	_	N:0.06/0.10 Nb:0.20/0.50 Nb≧15×C	≧205	≧515	≧40	≦201	<b>≦</b> 92	_	

Stainless Steel Plates & Sheets Available Product Grades

## Available Product Grades

		Grade				Chemical Composition(%)								Mechanical Properties						
Stainless Steel	ASTM	EN	Symbol of Grades	Others				_			_			Tensile P	roperties(1MP	a=1N/mm²)	Hardness			
Group	(A240M)	Number	(NSSC)	(JIS)	С	Si	Mn	Р	S	Ni	Cr	Мо	Others	Yield Strength MPa	Tensile Strength MPa	Elongation %	HBW	HRBW	Bend Test	
	405	(1.4002)		(SUS405)	≦0.08	≦1.00	≦1.00	≦0.040	≦0.030	≦0.60	11.5/14.5	_	AI:0.10/0.30	≧170	≧415	≧20	≦179	≦88	<b>%</b> 6	
	430	(1.4016)		(SUS430)	≦0.12	≦1.00	≦1.00	≦0.040	≦0.030	≦0.75	16.0/18.0	_		≧205	≧450	≧22	≦183	≦89	<b>%</b> 6	
Ferritic Steels			(NSSC 190L)	SUS444	≦0.025	≦1.00	≦1.00	≦0.040	≦0.030	<b>*1</b>	17.00/20.00	1.75/2.50	*2	≧245	≧410	≧20	≦217	≦96	<b>%</b> 7	
		(1.4003)	(NSSC 410W)	SUS410L	≦0.030	≦1.00	≦1.00	≦0.040	≦0.030	*1	11.00/13.50	_		≧195	≧360	≧22	≦183	≦88	<b>%</b> 7	
			(NSSC 409L)	SUH409L	≦0.030	≦1.00	≦1.00	≦0.040	≦0.030	<b>*1</b>	10.50/11.75	_	Ti:6(C+N)/0.75	≧175	≧360	≧25	≦162	≦80	<b>%</b> 8	
Martensitic	(410)	(1.4006)		SUS410	≦0.15	≦1.00	≦1.00	≦0.040	≦0.030	*1	11.50/13.50	_		≧205	≧440	≧20	≦201	≦93	<b>%</b> 7	
Steels	410S	(1.4000)		(SUS410S)	≦0.08	≦1.00	≦1.00	≦0.040	≦0.030	≦0.60	11.5/13.5	_		≧205	≧415	≧22	≦183	≦89	<b>%</b> 6	
	S32101**	(1.4162)			≦0.040	≦1.00	4.00/6.00	≦0.040	≦0.030	1.35/1.70	21.0/22.0	0.10/0.80	N:0.20/0.25 Cu:0.10/0.80	≧450	≧650	≧30	≦290	_	_	
	S82122		(NSSC 2120)	(SUS821L1)	≦0.030	≦0.75	2.0/4.0	≦0.040	≦0.020	1.5/2.5	20.5/21.5	≦0.60	N:0.15/0.20 Cu:0.50/1.50	≧400	≧600	≧30	≦290	≦32(HRC)	_	
	S32304	(1.4362)		(SUS323L)	≦0.030	≦1.00	≦2.50	≦0.040	≦0.030	3.0/5.5	21.5/24.5	0.05/0.60	N:0.05/0.20 Cu:0.05/0.60	≧400	≧600	≧25	≦290	≦32(HRC)	_	
	S31803	(1.4462)	(NSSC DX1)	(SUS329J3L)	≦0.030	≦1.00	≦2.00	≦0.030	≦0.020	4.5/6.5	21.0/23.0	2.5/3.5	N:0.08/0.20	≧450	≧620	≧25	≦293	≦31 (HRC)	_	
Austenitic- Ferritic	S32205	(1.4462)			≦0.030	≦1.00	≦2.00	≦0.030	≦0.020	4.5/6.5	22.0/23.0	3.0/3.5	N:0.14/0.20	≧450	≧655	≧25	≦293	≦31 (HRC)	_	
Steels		(1.4507)		SUS329J4L	≦0.030	≦1.00	≦1.50	≦0.040	≦0.030	5.50/7.50	24.00/26.00	2.50/3.50	N:0.08/0.30	≧450	≧620	≧18	≦302	≦32(HRC)	_	
	S31260		(NSSC DP-3)	(SUS329J4L)	≦0.03	≦0.75	≦1.00	≦0.030	≦0.030	5.5/7.5	24.0/26.0	2.5/3.5	*3	≧485	≧690	≧20	≦290	_	_	
	S32750	(1.4410)		(SUS327L1)	≦0.030	≦0.80	≦1.20	≦0.035	≦0.020	6.0/8.0	24.0/26.0	3.0/5.0	<b>*4</b>	≧550	≧795	≧15	≦310	≦32(HRC)	_	
	S32760	(1.4501)			≦0.030	≦1.00	≦1.00	≦0.040	≦0.020	6.0/8.0	24.0/26.0	3.0/4.0	<b>%</b> 5	≧550	≧750	≧25	<b>≦</b> 270	_	_	
	S32808		(NSSC DP-28W)		≦0.030	≦0.50	≦1.10	≦0.030	≦0.010	7.0/8.2	27.0/27.9	0.80/1.2	N:0.30/0.40 W:2.10/2.50	≧500	≧700	≧15	≦310	≦32(HRC)	_	

\*\* S32101: Sold under license from Outokumpu Stainless AB (re. patents on LDX2101® grade) in the Territory (designated countries) .

\* 1 :  $\leq$  0.60 \* 2 : N  $\leq$  0.025, Ti,Nb(Cb),Zr or their combination : 8 (C+N)  $\sim$  0.80 \* 3 : N:0.10/0.30, Cu:0.20/0.80, W:0.10/0.50

\* 4 ∶ N:0.24/0.32, Cu≦0.50, Cr+3.3Mo+16N≧41

\* 5 : N:0.20/0.30, Cu:0.50/1.00, W:0.50/1.00, Cr+3.3Mo+16N≥40

- $*\,6 \stackrel{\cdot}{\cdot} \text{ Bending Angle} \stackrel{\cdot}{\cdot} 180^{\circ}, \text{ Inside Radius } t \stackrel{\leq}{=} 9.52 \stackrel{\cdot}{\cdot} \text{ equal to one half the specimen thickness}, 9.52 \stackrel{<}{\cdot} t \stackrel{\leq}{=} 25.4 \stackrel{\cdot}{\cdot} \text{ equal to the specimen thickness}$ 25.4<t : not required
- \* 7  $\stackrel{\cdot}{\cdot}$  Bending Angle  $\stackrel{\cdot}{\cdot}$  180°, Inside Radius  $\stackrel{\cdot}{\cdot}$  equal to the specimen thickness
- \*8 : Bending Angle : 180°, Inside Radius t<8 : equal to one half the specimen thickness, 8≦t : equal to the specimen thickness

### Quality Management System (at Yawata Works)

### **■**General Purpose•Pressure Vessel

Quality System Standard/Specification	Standard/Specification	Grade
ISO9001	Available Standard	Available Grade
ISO9001 (JIS Q9001) (JIS Q1001 Certification System )	JIS G4304	Approved Grade
PED 97/23/EC (PRESSURE VESSEL)	JIS G4304 ASTM A240/A240M ASME SA-240/SA-240M EN 10028-7	Approved Grade
AD2000-W0 (PRESSURE VESSEL)	EN10028-7 AD2000-W2, W10 VdTUV418	Austenitic : Available Grade Austenitic • Ferritic : 1.4410, 1.4462

### **■**Offshore Structure

Quality System Standard/Specification	Standard/Specification	Grade
NORSOK M-650	NORSOK M-630	MDS R15 UNS S31254 MDS D45 UNS S31803 UNS S32205 MDS D55 UNS S32750

### ■ Ship Classification Societies

Society	Grade	Products
Class NK (NK)*1	KSUS304, KSUS316L,KSUS316LN, KSUS329J3L and many others	Stainless Steel Stainless steel-clad plate
Lloyd's Register (LR)	LR304L, LR316L, LR316LN, S31803 e.t.c.	Stainless Steel Stainless steel-clad plate
DNV∙GL	VL304L, VL316L, VL316LN, S32205 e.t.c.	Stainless Steel
Bureau Veritas (BV)*1	BV304L, BV316L, BV316LN, S32205 e.t.c.	Stainless Steel Stainless steel-clad plate
Korean Resister of Shipping (KR)	RSTS304L, RSTS316L, RSTS316LN, S31803 e.t.c.	Stainless Steel Stainless steel-clad plate
American Bureau of Shipping (ABS)	TYPE304, TYPE304L, TYPE316, TYPE316L, S32205 e.t.c.	Stainless Steel According to ASTM and ASME specifications
China Classification Society (CCS)	S22053 (Austenitic-Ferritic steel) e.t.c.	Stainless Steel
Registro Italiano Navable (RINA)	S32205 e.t.c.	Stainless Steel

<sup>\*1</sup> Manufacturing Process Approved

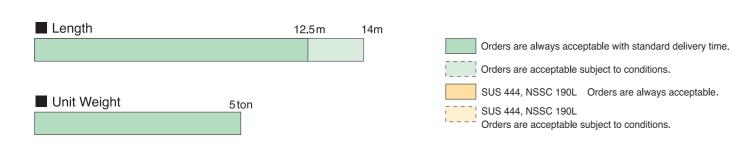
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Stainless Steel Plates & Sheets

## Sizes Available

### 

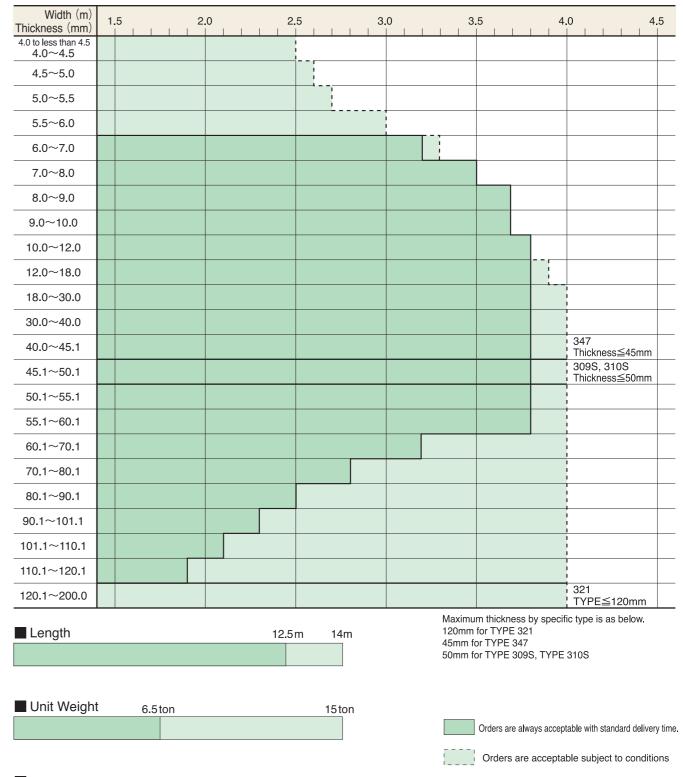




Minimum Size Width≥1,219mm, Length≥2,000mm

Please contact us when you need other type or size than mentioned above.

### Austenitic Steels ①(TYPE 304, 304L, 321, 347, 309S, 310S)



Minimum Size Width≥1,219mm, Length≥2,000mm (heavy plate 2,500mm)

Please contact us when you need other type or size than mentioned above.

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Stainless Steel Plates & Sheets Sizes Available

### Austenitic Steels 2 (TYPE 316, 316L, 317L) Austenitic-Ferritic (Dual-phase) Steels (S82122, S32304, S31803, S32205) Size Size Width (m) Width (m) 1.5 3.5 2.0 2.5 3.0 2.0 2.5 Thickness (mm) Thickness (mm) 4.0 to less than 4.5 4.0 to less than 4.5 4.0~4.5 $4.0 \sim 4.5$ 4.5~5.0 4.5~5.0 5.0~5.5 5.0~5.5 5.5~6.0 5.5~6.0 6.0~7.0 6.0~7.0 7.0~8.0 7.0~8.0 8.0~9.0 8.0~9.0 9.0~10.0 9.0~10.0 10.0~12.0 10.0~16.0 12.0~18.0 16.0~18.0 18.0~30.0 18.0~20.0 30.0~40.0 20.0~25.0 40.0~50.0 25.0~30.0 50.0~60.1 30.0~40.0 60.1~70.1 40.0~50.0 70.1~80.1 50.0~60.0 80.1~90.1 60.0~80.0 90.1~100.1 100.1~110.1 80.0~100.0 100.0~200.0 110.1~120.0 120.0~200.0 Length 12.5 m 14m Length 12.5m 14m Orders are always acceptable with standard delivery time. Unit Weight 4.5ton 6.5ton Orders are acceptable subject to conditions. Unit Weight TYPE 317L : Thickness≦50mm 6.5ton 15ton ■ Minimum Size Width≥1,219mm, Length≥2,500mm

Please contact us when you need other type or size than mentioned above.

Minimum Size Width≥1,219mm, Length≥2,000mm (heavy plate 2,500mm)

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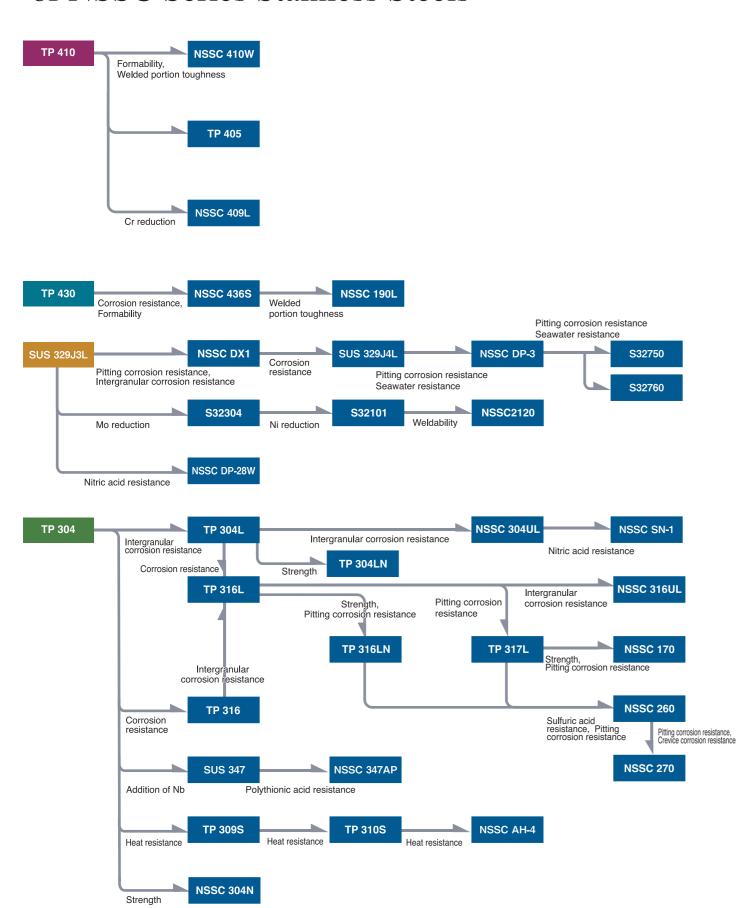
Please contact us when you need other type or size than mentioned above.

Orders are always acceptable with standard delivery time.

S82122 Thickness≦45mm

Orders are acceptable subject to conditions.

# Guide to Selection of Approproate Grade of NSSC Series Stainless Steels



## List of NSSC Series Stainless Steels

		Chemical Composition  Mechanical Properties  Upper/Tensile Properties  Lower/Hardness, (Bend)		osion	osion resista		Forn	St	Heat-resistance	8		
Stainless Steel Group	Symbol of Grade (similar grade)			Pitting corrosion resistance Stress corrosion resistance Oxidation		Intergranular corrosion resistance	Formability Deep drawability	Strength		Weldability	Application examples	
	NSSC 270 (S31254)	20Cr-18Ni-6Mo-0.7Cu-0.2N-LC 0.2YS≧300, TS≧650, EL≧35 HBW≦223, HRB≦96	0	0	0	0		0			Seawater water conversion device, Chimney, Salt manufacture plant, Food manufacture plant	
	NSSC 170 (SUS 317J2)	25Cr-13Ni-0.9Mo-0.3N 0.2YS≧345, TS≧690, EL≧40 HBW≦250, HRB≦100			0			0	0		Exhaust gas desulfurizer, Waste fluid processor, High temperature usage	
	NSSC 317LN (SUS 317LN)	19Cr-13Ni-3.5Mo-0.2N-LC 0.2YS≧245, TS≧550, EL≧40 HBW≦217	0			0					High corrosion resistance	
	NSSC 316LN (SUS 316LN)	18Cr-11Ni-2.5Mo-0.2N-LC 0.2YS≧315, TS≧550, EL≧40 HBW≦217	0			0		0			High strength, Nonmagnetic	
Austenitic	NSSC 316UL (TYPE316L)	17Cr-15Ni-2Mo-ULC 0.2YS≧175, TS≧480, EL≧40 HBW≦187, HRB≦90	0			0				0	Nuclear fuel reprocess equipment Equipment to which nitric acid is applied	
Steels	NSSC 304UL (TYPE304L)	18Cr-10Ni-ULC 0.2YS≧175, TS≧480, EL≧40 HBW≦187, HRB≦90				0				0	Nuclear fuel reprocess equipment Equipment to which nitric acid is applied	
	NSSC 304N (TYPE304N)	18Cr-8Ni-0.2N 0.2YS≧345, TS≧690, EL≧40 HBW≦250, HRB≦100						0			Equipment which needs higher strength than Type 304	
	NSSC SN-1	17Cr-14Ni-4Si-LC 0.2YS≧245, TS≧590, EL≧40 HBW:149∼241	0			0					Nitric acid plant	
	NSSC AH-4	23Cr-11Ni-0.2N-La-Ce-B 0.2YS≥280, TS≥600, EL≥40 HBW≤217, HRB≤95							0	0	High temperature material	
	NSSC 347AP	17Cr-10Ni-Nb-N-LC 0.2YS≥205, TS≥515, EL≥40 HBW≤217, HRB≤95	0	0					0	0	Oil desulfurization facility	
	NSSC 2120 (S82122)	21Cr-2Ni-1Cu-0.17N-LC 0.2YS≥400, TS≥600, EL≥30 HBW≤290, HRC≤32						0		0	Desalination plants Chemical tanker	
Austenitic- Ferritic	NSSC DX1 (S31803)	22Cr-5Ni-3Mo-0.15N-LC 0.2YS≧450, TS≧620, EL≧25 HBW≦290		0	0			0			Chemical plant, Energy related plant, Chemical tanker	
Steels	NSSC DP-3 (SUS 329J4L)	25Cr-7Ni-3Mo-0.15N-Cu-W-LC 0.2YS≧450, TS≧620, EL≧18 HBW≦302, HRC≦32, Bend <sup>*1</sup>		0	0			0			Chemical plant	
	NSSC DP-28W (S32808)	27.5Cr-8Ni-1Mo-0.3N-2.2W-LC 0.2YS≧500, TS≧700, EL≧15 HBW≦310, HRC≦32		0	0			0			Urea plant	
	NSSC 190L (SUS 444)	19Cr-2Mo-Nb-V-ULC-LN 0.2YS≧275, TS≧410, EL≧22 HBW≦217, HRB≦96, Bend <sup>®2</sup>		0	0	0				0	Chemical plant, Hot water tank	
Ferritic Steels	NSSC 436S (SUS 436L)	17Cr-1.2Mo-0.2Ti-LC-LN 0.2YS≧205, TS≧390, EL≧25 HBW≦162, HRB≦85, Bend <sup>®3</sup>					0				Automotive exhaust system part, Kitchen equipment, Household electric appliances part, Building interior material, Gate	
	NSSC 409L (SUH 409L)	11Cr-Ti-LC 0.2YS≧175, TS≧360, EL≧25 HBW≦183, Bend <sup>®3</sup>					0		0	0	Equipment related to automotive exhaust system	

<sup>\*1</sup> Bending Angle: 180°, Inside Radius t < 6: equal to one half the specimen thickness, 6  $\le$  t: equal to the specimen thickness

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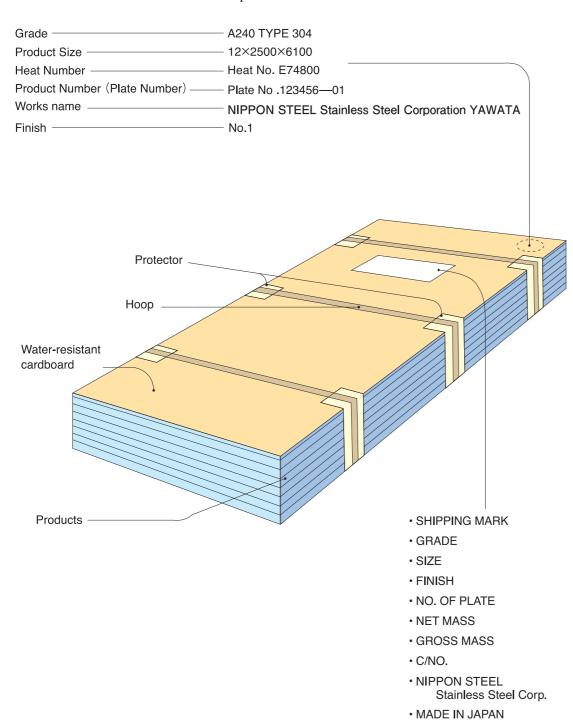
<sup>\*2</sup> Bending Angle:180°, Inside Radius t<8:equal to one half the specimen thickness, 8≦t:equal to the specimen thickness

<sup>\*3</sup> Bending Angle: 180°, Inside Radius: equal to the specimen thickness

## Marking and Packaging

### (Example)

### Record on the actual product



## Precautions in Use

If stainless steel sheets are improperly handled or used, they cannot fully exhibit their characteristic features. When handling or using stainless steel sheets, attention should be paid to the following points.

### Storage and Unloading

- 1. If stainless steel sheets get wet during unloading or storage, rusting will occur. Accordingly, stringent care should be taken to avoid their unloading on rainy days or their getting wet by seawater. Storage at high humidity or in a sulfur-dioxide atmosphere should be avoided. Storage in a dry, clean place is recommended.
- 2. Damaged packing paper should be repaired.

## Handling

- 1. Because cutting bundling and packaging hoops (bands) may touch your face and your body, be careful about bouncing hoops and hoop-tips.
- To avoid injury, do not handle unpacked sheets by bare hand. In handling these sheets, particularly with Cut-ends and cutting chips with burr may be injurious, careful handling and use of rotective gloves are recomended.

## Directions for Ordering

Stainless steel sheet and strip can demonstrate their optimum characteristic performances when the appropriate steel grade is properly selected in terms of application, design, fabrication and other similar conditions. Please place your orders after obtaining the advice of NIPPON STEEL Stainless Steel regarding the above conditions.

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### When placing orders

Please include the following information as specifically as possible.

- 1. Standard to be applied
- for example, JIS G 4304, ASTM, ASME, EN, any special specification, etc.
- 2. Grade
- for example, JIS (SUS No.), ASTM, ASME (Type No.), etc.
- 3. Surface Finish
- as heat-treated or not, pickled or not, Buff finish No., one or both side(s)
- 4. Size
- Thickness×Width×Length (availability of enlarged scale)
- 5. Volume
- Number of plate(s) and weight
- 6. Usage and how to be processed
- Name of plant, Temperature to be applied, Pressure, Kind of liquid or gas applied,
- Method and conditions of processing, Method of welding, etc.
- 7. Delivery time

### Technical services

Please feel free to consult NIPPON STEEL Stainless Steel's headquarters as to technical matters such as grade selection and applications of stainless steel sheet and strip. NIPPON STEEL Stainless Steel is ready to offer appropriate technical services on the basis of extensive research and expertise and achievements accumulated over long years of technical services.