

Nisshin Steel Quality Products

STAINLESS FOIL

Nisshin Steel's Wide width Stainless Foil

STAINLESS FOIL

Nisshin Steel's "Ultrathin" Technology Adds Extra Value



Ichikawa Works

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to Stainless Steel.

Stainless foil is widely used in electronic, precision, auto parts and other high-tech fields and must meet rigorous accuracy requirements such as quality, thickness, and shape.

Other fields of use in the future are likely to include construction materials, kitchen utensils, and medical equipment.

Nisshin Steel manufactures stainless foil by applying Moonstar-branded thin-sheet manufacturing technologies accumulated over numerous years and dedicated ultrathin-sheet manufacturing equipment, combining them into an integrated process from steel-making through final products, carefully monitored process proceeding from steel-making to final product processing. Nisshin Steel's ultrathin stainless foils meet a wide range of market needs ensuring high reliability.

Nisshin Steel exerts itself assiduously in research and development to serve every and all the so quality requirements of its customers.

Features of Stainless Foil

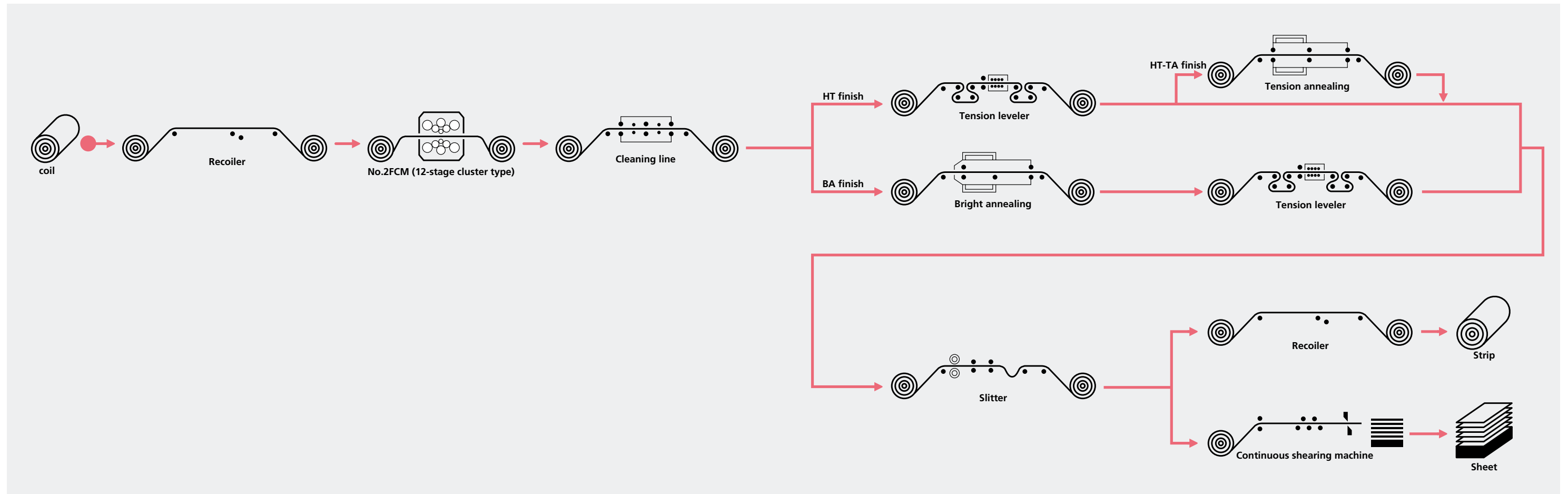
- 1** Coil of up to 20 μm in thickness and 600mm in width can be manufactured.
- 2** Our integrated manufacturing system from steelmaking to finished products enables us to meet diverse needs on material characteristics with flexibility.
- 3** Our chemical composition designs according to customers' applications enable us to offer high strength, heat resistance, non-magnetism and various other product characteristics.
- 4** The introduction of our latest rolling mill has enabled us to offer superior products in terms of size accuracy and shape control.

■DNA-SUS is a brand name for value-added stainless steel products that carries on the Nisshin Steel tradition of superb technologies.



Dynamic **N**isshin **A**dvanced **S**trategic **U**nique **S**tainless

Manufacturing Process



Full view of stainless foil plant (Ichikawa Works)



No.2FCM (12-stage cluster type) (Ichikawa Works)



Bright annealing facility (Ichikawa Works)



Slitter (Ichikawa Works)

Chemical Composition of Main Steel Grades

Specification Type	Steel grade	Chemical composition (%)										
		C	Si	Mn	P	S	Ni	Cr	Mo	Cu	N	Others
Ferritic type	SUS 430	≦ 0.12	≦ 0.75	≦ 1.00	≦ 0.040	≦ 0.030	≦ 0.60	16.00 ~18.00	—	—	—	—
	NCA-1	≦ 0.03	≦ 1.00	≦ 1.00	≦ 0.040	≦ 0.030	≦ 0.60	17.00 ~19.00	—	—	—	Al: 2.00 ~ 4.00 Ti: ≦ 0.50
Austenitic type	SUS 301	≦ 0.15	≦ 1.00	≦ 2.00	≦ 0.045	≦ 0.030	6.00 ~8.00	16.00 ~18.00	—	—	—	—
	SUS 304	≦ 0.08	≦ 1.00	≦ 2.00	≦ 0.045	≦ 0.030	8.00 ~10.50	18.00 ~20.00	—	—	—	—
	NSS 305 M1	≦ 0.08	≦ 1.00	2.00 ~4.00	≦ 0.040	≦ 0.030	11.00 ~13.00	15.00 ~17.00	—	—	—	—
	SUS 316	≦ 0.08	≦ 1.00	≦ 2.00	≦ 0.045	≦ 0.030	10.00 ~14.00	16.00 ~18.00	2.00 ~3.00	—	—	—

Note: Please inquire for other steel grades.

Mechanical Properties

1. Mechanical properties of annealed materials

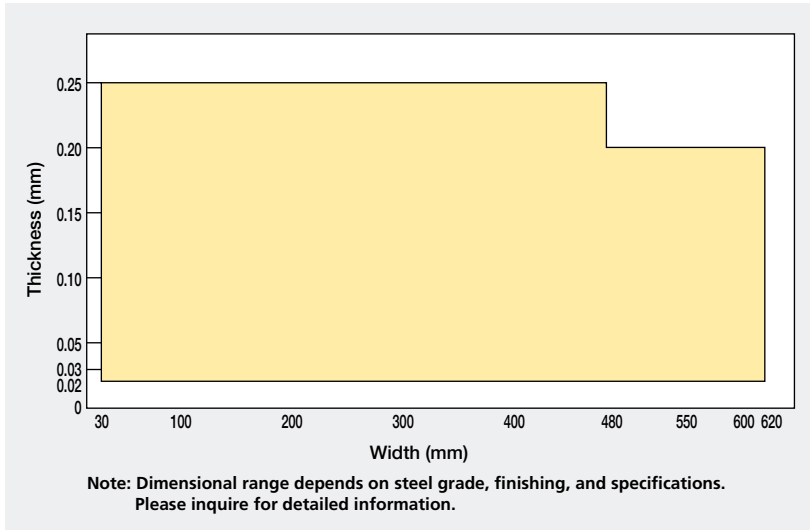
Steel grade	Mechanical properties (cold-rolled or solution-treated state)				
	Hardness H V	Yield stress N/mm ²	Tensile strength N/mm ²	Elongation %	
Ferritic type	SUS 430	200 or lower	205 or more	420 or more	22 or more
	NCA-1	220 or lower	Reference	490 or more	20 or more
Austenitic type	SUS301	218 or lower	205 or more	520 or more	40 or more
	SUS 304	200 or lower	205 or more	520 or more	40 or more
	NSS 305 M1	200 or lower	175 or more	480 or more	40 or more
	SUS 316	200 or lower	205 or more	520 or more	40 or more

2. Mechanical properties of skinpass rolled materials or specially heat-treated materials

Steel grade	Skinpass rolled	Mechanical properties (cold-rolled or solution-treated state)			
		Hardness H V	Yield stress N/mm ²	Tensile strength N/mm ²	Elongation %
SUS 304 SUS 304-CSP	1/2H, 1/2H-TA	250 or more	470 or more	780 or more	6 or more
	3/4H, 3/4H-TA	310 or more	665 or more	930 or more	3 or more
	H, H-TA	370 or more	880 or more	1130 or more	—
SUS 301 SUS 301-CSP	1/2H, 1/2H-TA	310 or more	510 or more	930 or more	10 or more
	3/4H, 3/4H-TA	370 or more	745 or more	1130 or more	5 or more
	H, H-TA	430 or more	1030 or more	1320 or more	—
	EH, EH-TA	490 or more	1275 or more	1570 or more	—

Note: Please inquire for other steel grades.

Available size



Dimensional Tolerances (Typical Examples)

1. Thickness tolerances

Sheet thickness (mm)	Skinpass rolled codes	Tolerance figures based on Nisshin Steel specifications (μm)
$0.200 \leq G \leq 0.250$	All	± 5
$0.160 \leq G < 0.200$	All	± 5
$0.100 \leq G < 0.160$	All	± 4
$0.030 \leq G < 0.100$	All	± 3
$0.030 \leq G < 0.080$	EH, EH-TA	± 1

Note1: Thickness tolerance depends on sheet width. Please inquire for detailed information.

2. Width tolerances

(Unit : mm)

Sheet thickness	Tolerance figures based on Nisshin Steel specifications		
	Sheet width $30 \leq W < 80$	$80 \leq W < 250$	$250 \leq W \leq 600$
$0.100 \leq G \leq 0.250$	± 0.10	± 0.20	± 0.25
$0.030 \leq G < 0.100$	± 0.20	± 0.30	± 0.70

Note 1: Please inquire for tolerances other than those listed above.
Note 2: Please inquire for specifications.

3. Length tolerances (for sheets only)

(Unit : mm)

Sheet thickness	Length	Tolerance figures based on Nisshin Steel specifications
$0.10 \leq G \leq 0.25$	$350 \leq L \leq 1000$	± 1.0
$0.06 \leq G < 0.10$	$350 \leq L \leq 900$	± 1.5
$0.05 \leq G < 0.06$	$450 \leq L \leq 850$	± 1.5

4. Camber (for coils only)

(Unit : mm)

Sheet width	Maximum value based on Nisshin Steel specifications
$80 \leq W \leq 600$	1.0
$40 \leq W < 80$	3.0
$30 \leq W < 40$	6.0

Maximum camber value per length of 1,000 mm

Exemplar Applications

■ 1. Electronic and electrical parts

- Office equipment parts
- Disk springs
- Metal masks
- Connectors
- Contact springs
- Electromagnetic wave shielding materials
- Magnetic shielding materials
- Batteries
- Electrode plates
- Film heater

■ 2. Automotive and machine parts

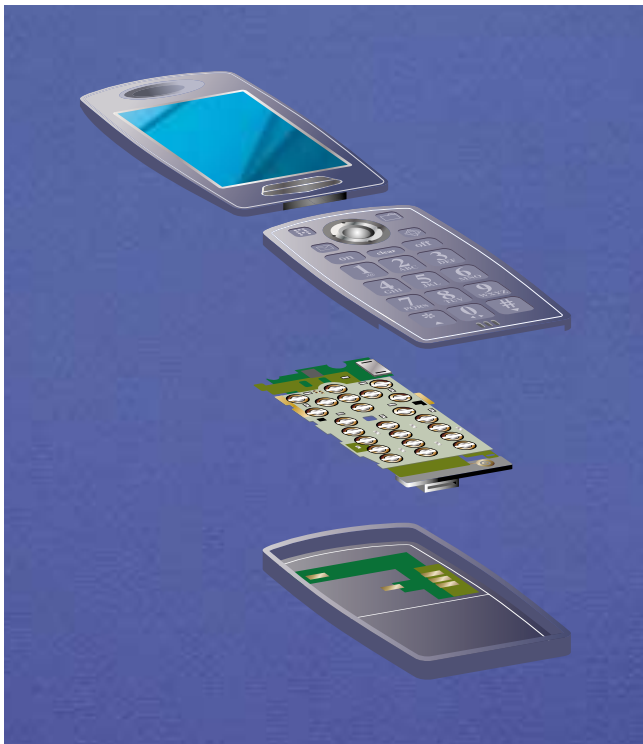
- Metal gaskets
- Filters
- Heat exchangers

■ 3. Construction materials and kitchen equipment

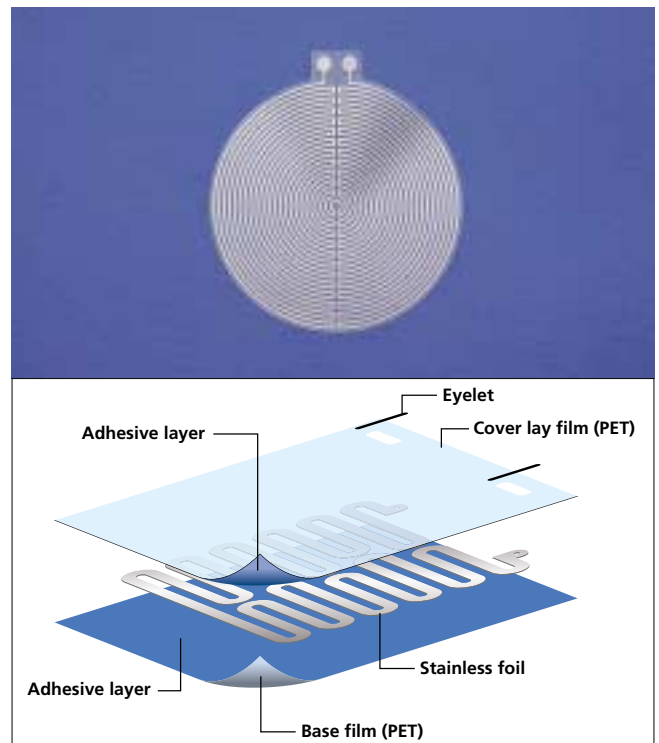
- Composite decorative boards
- Heat insulator
- Flexible pipes
- Base moldings

■ 4. Others

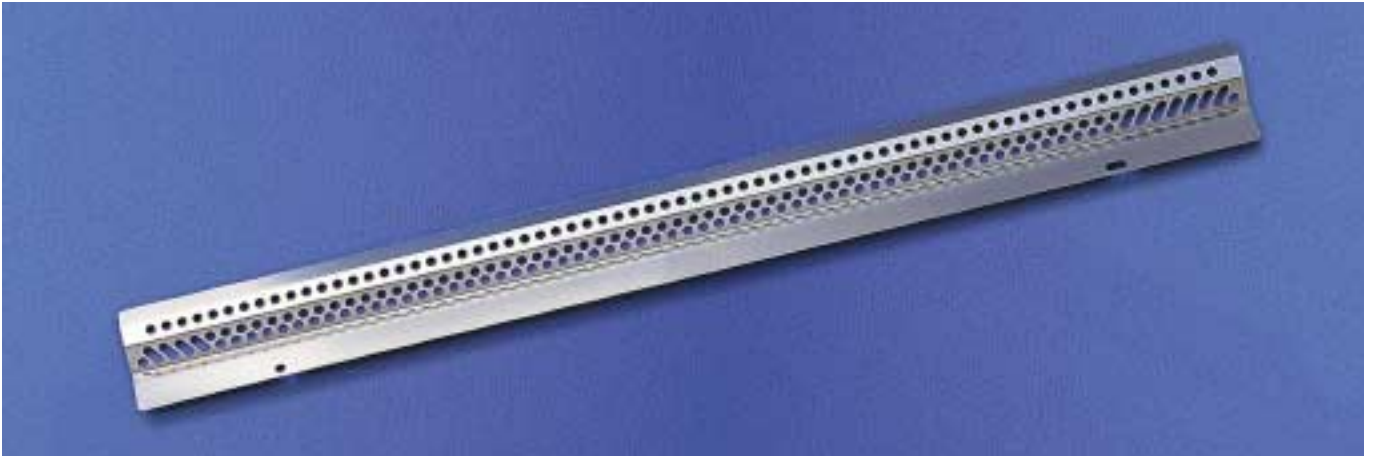
- Scale plates
- Metal tapes
- Electric wire sheaths
- Spacers
- Drafting hand plates
- Medical apparatuses



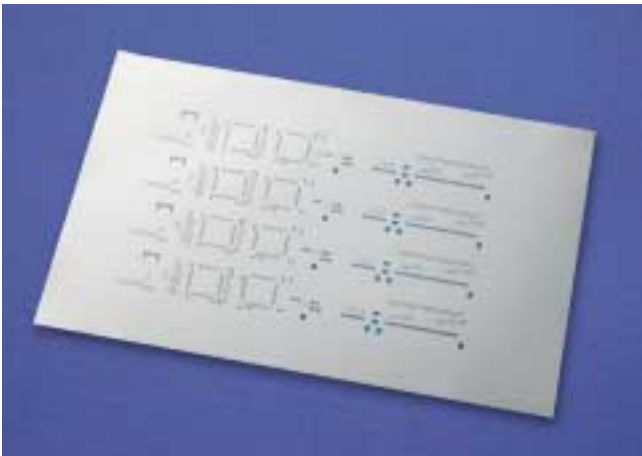
Mobile phone parts



Film heater



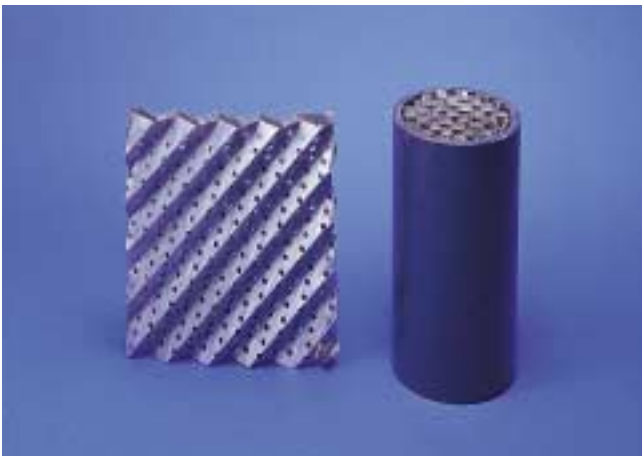
Toner cartridge component for photocopier



Metal mask



Vibration-suppressive tape



Filler for distillation column



Metal foil art

Packaging

■ 1. Coil inner diameters

Standard coil package inner diameters are 76 mm, 300 mm, 400 mm, and 508 mm.

■ 2. Package styles

The photographs below illustrate the standard package styles.



Narrow-width coil package



Wide-width coil package



Coil package with 76-mm inner diameter



Coil package with 76-mm inner diameter



Sheet package



Export package

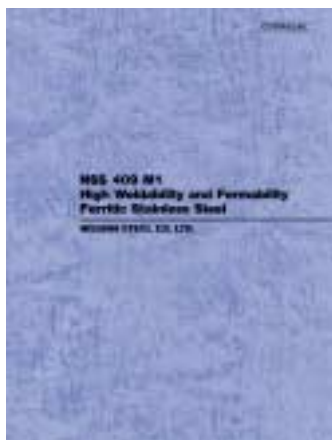
Information Needs to Meet Orders

● Please provide the following detailed information when ordering:

- (1) Steel grade, finish, dimensions
- (2) Application, processing method
- (3) Required specifications: Maximum acceptable dimensional tolerances (thickness, width, length), weight per package (internal diameter in the case of strip products)
- (4) Quantity, delivery date, delivery site
- (5) Other requests

● Technical information

This catalog gives general descriptions of Nisshin Steel's stainless foil. We welcome detailed inquiries concerning technical information and data for the stainless steel materials used in our products. The following technical documents are available:



Technical Information



DNA-SUS catalog

● For product orders and inquiries...

Selecting the optimal stainless steel for your specific application, design conditions, processing conditions, and other needs leads to optimal performance.

For product orders and inquiries, please contact the nearest dealership.

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NISSHIN STEEL CO., LTD

www.nisshin-steel.co.jp

JAPAN

Registered Head Office

Shinkokusai Building, 4-1, Marunouchi 3-chome, Chiyoda-ku,
Tokyo 100-8366, Japan

Telephone: (81-3) 3216-6312 Facsimile: (81-3) 3216-6325

OVERSEAS

Singapore Representative Office

16 Raffles Quay #20-01, Hong Leong Bldg., Singapore 048581

Telephone: (65) 6221-1277/8 Facsimile: (65) 6224-2357

Bangkok Representative Office

Unit 6, 35th Floor, CRC Tower All Seasons Place,

87/2 Wireless Road, Phatumwan, Bangkok 10330, Thailand

Telephone: (66) 2-654-0783 Facsimile: (66) 2-654-0981

Guangzhou Representative Office

Room 1505, Office Tower, CITIC Plaza, 233 Tian He North Road,
Guangzhou 510613, P.R.China

Telephone: (86) 20-3877-1054 Facsimile: (86) 20-3877-1094

SUBSIDIARIES

Nisshin Steel USA, LLC

1701 Golf Road, Continental Tower3, Suite1004,

Rolling Meadows, IL 60008 U.S.A.

Telephone: (1-847) 290-5100 Facsimile: (1-847) 290-0826

Nisshin Steel Shanghai Co.,Ltd.

Shanghai Maxdo Centre 3208-3210, 8 Xing Yi Road,

Hongqiao Development Zone, Shanghai 200336, P.R.China

Telephone: (86-21) 5208-0736 Facsimile: (86-21) 5208-0639

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