



Stainless Steel Seamless Pipe/ Stainless Steel Welded Pipes,  
Stainless Steel Fittings And Flanges/ Nickel Alloy Products



## Shanghai Toko Technology Co.,Ltd

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Shanghai Toko Technology Co.,Ltd

## COMPANY PROFILE ✦

Shanghai Toko Technology Co.,Ltd is located in Shanghai, China, and has been worked in the field of industrial piping for 11 years. We are committed to manufacturing and exporting stainless steel seamless pipe, stainless steel welded pipes, stainless steel fittings and flanges, nickel alloy products, Titanium seamless and welded tubes, etc. Our factories are all ISO&PED certificated, and the products can be produced in standard ASTM, JIS, DIN, EN, GOST, etc. Our products are widely used in the Oil and Gas, Petrochemical, Sugar Refining, Water Process, Desalination, Geothermal industry etc. We exported to dozens of countries and regions such as USA, Canada, Japan, Germany, France, Korea, Turkey etc.

**Our Vision:** To be an reliable supplier of global industrial piping system solutions.

**Our Mission:** To help global industrial pipeline construction with the products made in China.

### Our Guideline:

WE ARE QUALITY -DRIVEN

12 months warranty period for all our products; Top quality raw materials that are fully certified; Weekly production situation reports will be sent for all orders; 100% Materials will be double checked before shipment; 24hours after sales service online

### WE ARE SOLUTION-ORIENTED

The trust of our customer in our company  
High quality of our products  
Offering solution-oriented services  
Satisfaction-oriented team work  
Creating a brand value

### RELIABLE & EFFICIENT

We are committed to quality excellence by implementing a strict quality management plan  
We can guarantee high performance and the long lasting of all our products  
We constantly update our products by incorporating feedback from our clients and inhouse testing facilities

# Certifications ✦



# INSPECTION ✦



Eddy Current Test



PMI Chemical Testing



Hydraulic Test Equipment



Ultrasonic Detector



Wire Cutting Machine

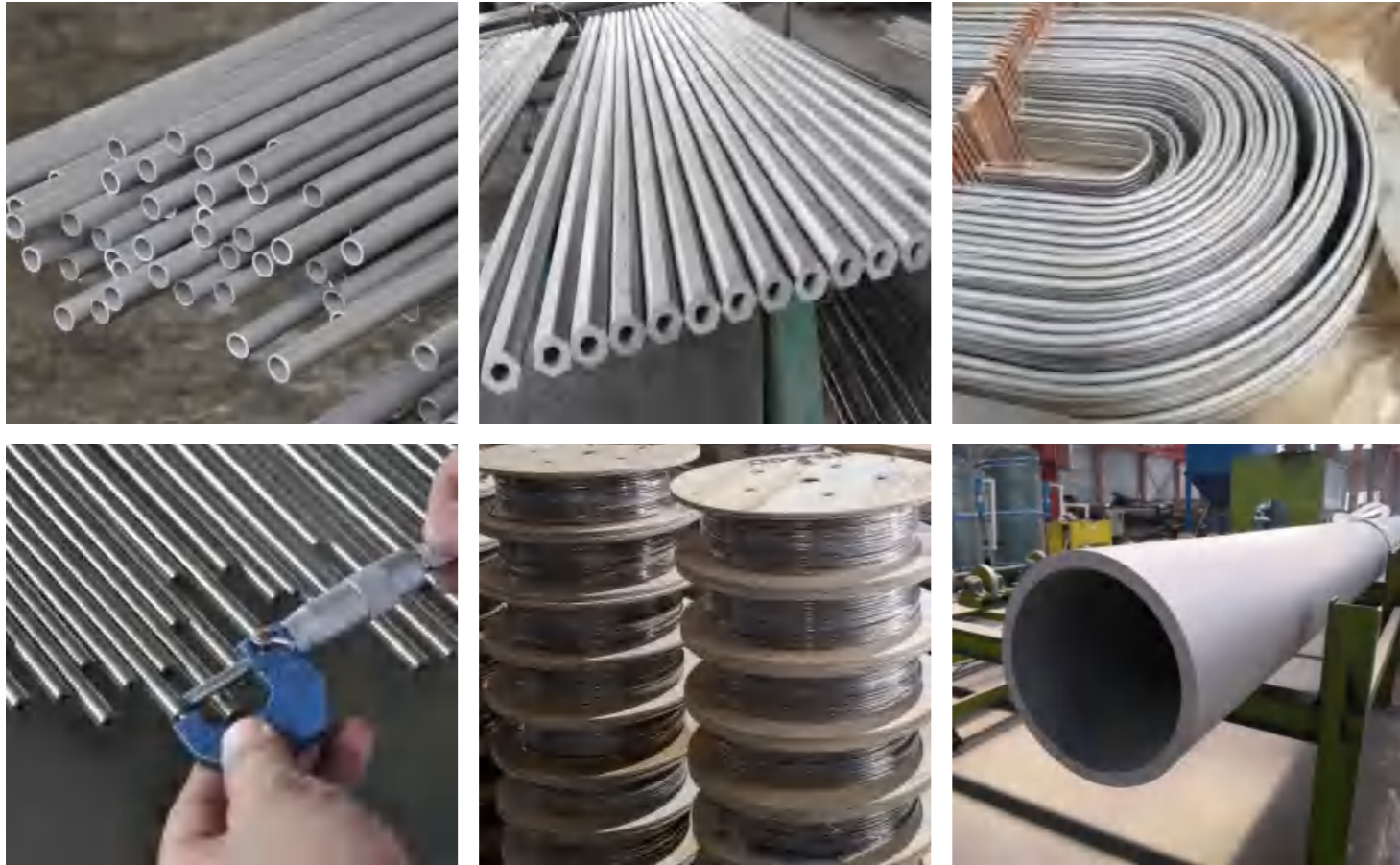


Universal Testing Machine



Impact Tester Equipment





## Stainless steel seamless pipe/tube

**Out diameter range:**

4mm -711mm

**Wall thickness range:**

0.6-80mm

**Grade:**

TP304L/H,TP316L/H/Ti, 321/H, 317L, 347H, 310S, N8904(904L), S31803,S32205,S32750,etc.

**Standard:**

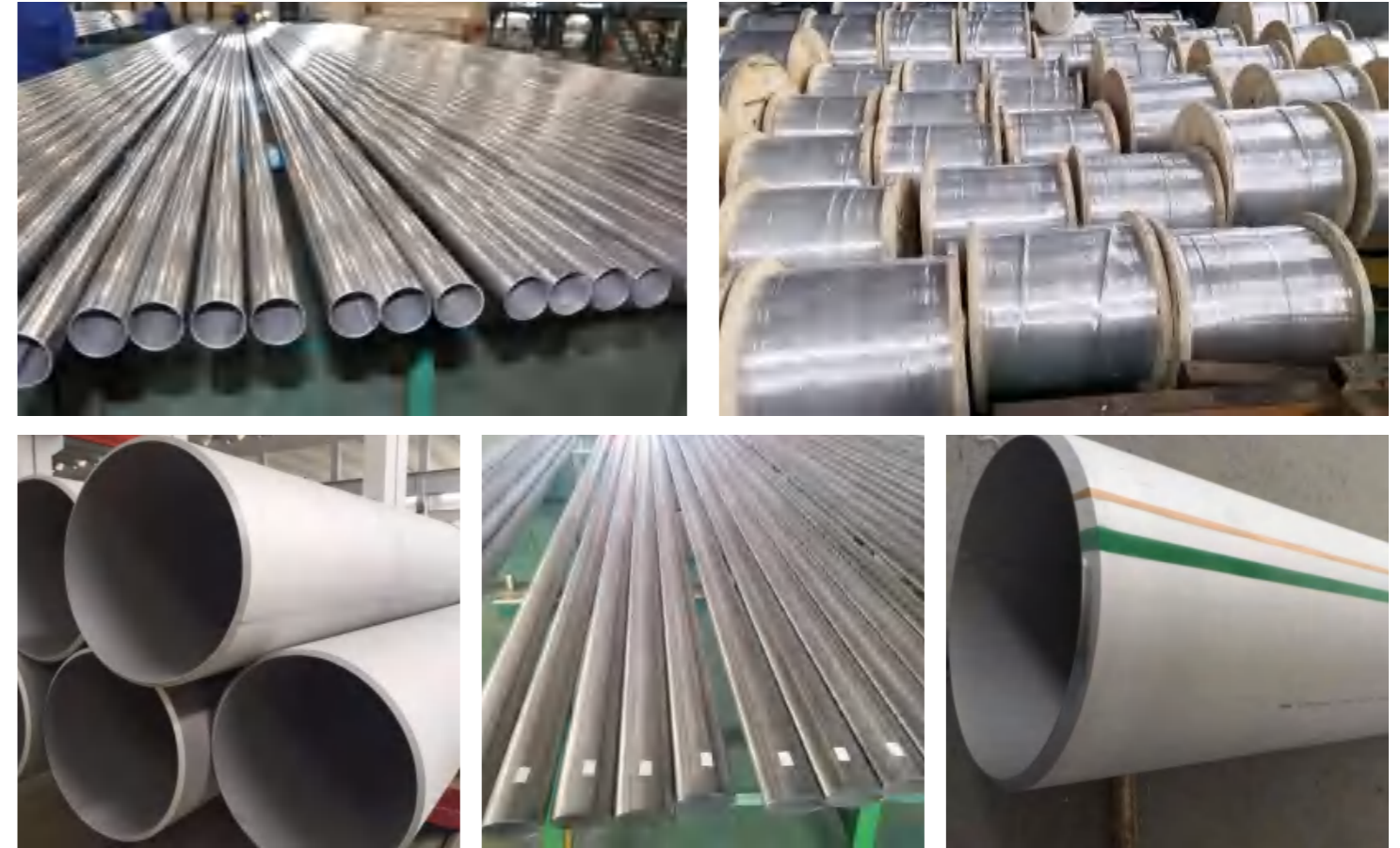
ASTM A312, ASTM A213, ASTM A269, ASTM A790, ASTM A789, GOST9941, EN10216-5,etc.

**Surface finish:**

Annealed &Pickled; bright annealed &Polished  
Annealed&Polished; Annealed & Pickled &Sandblasting.

**Tube Form:**

straight pipe/tube, super-long straight tube; U-tube; Coiled tube



## Stainless steel welded pipe/tube

**Out diameter range:**

6mm -711mm

**Wall thickness range:**

0.6-80mm

**Grade:**

TP304L/H,TP316L/H/Ti, 321/H, 317L, 347H, 310S, N8904(904L), S31803,S32205,S32750,etc.

**Standard:**

ASTM A312, ASTM A249, ASTM A269,ASTM A790, ASTM A789, GOST9941, EN10217-7,etc.

**Surface finish:**

Annealed &Pickled; bright annealed &Polished

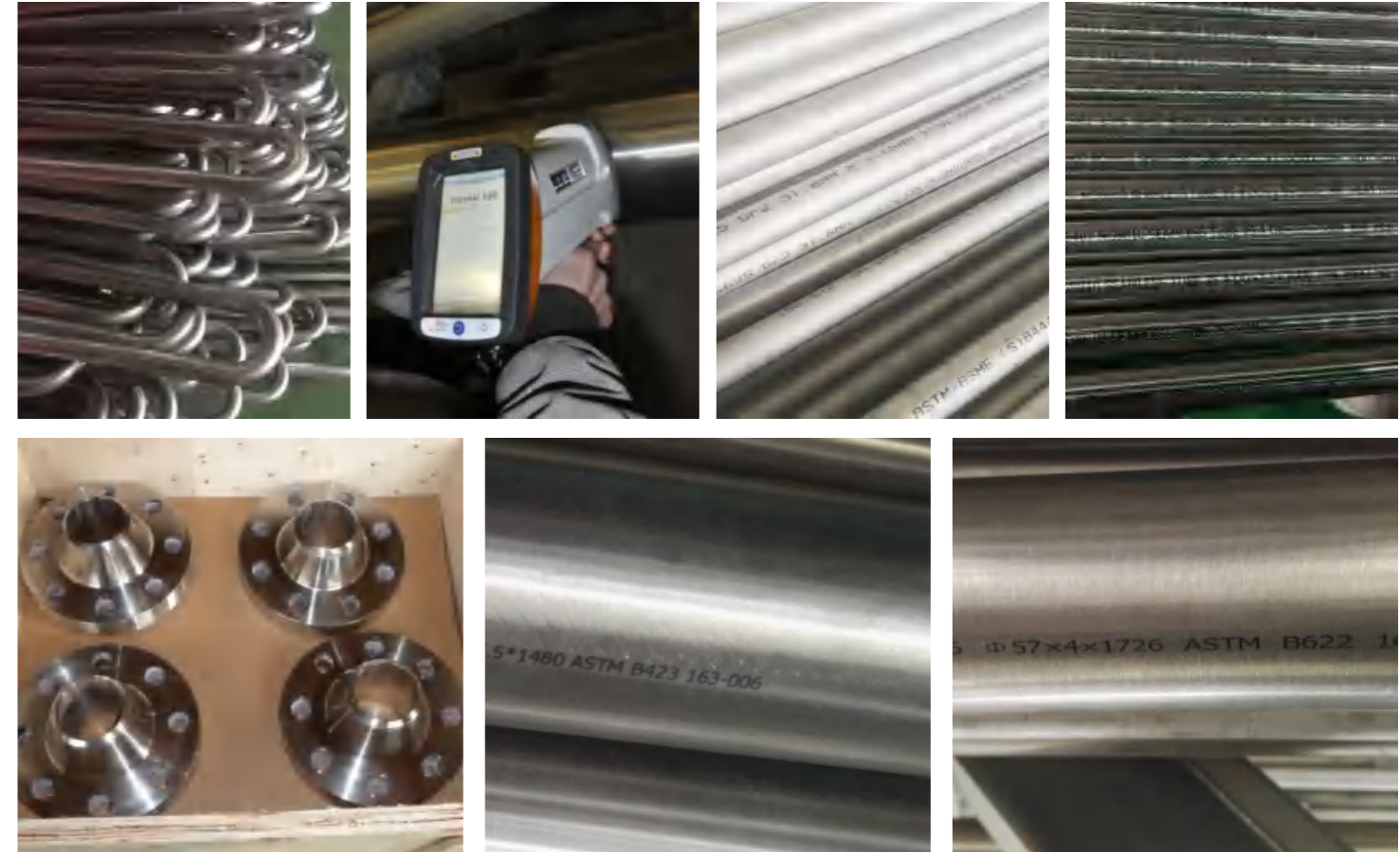
**Tube Form:**

straight pipe/tube, super-long straight tube; U-tube; Coiled tube



## Stainless steel fittings

Type: Elbow 30°, 45°, 60°, 90°, 180°, etc. (long radius, short radius) seamless and welded;  
 Tee (equal, opposite, eccentric) seamless and welded;  
 cross (equal, opposite, eccentric) seamless and welded;  
 Reducer (concentric, eccentric) seamless and welded;  
 Flanged pipe (right angle, fillet) seamless and welded; Cap;  
 Standards: ASME B16.9, ASME B16.28, JIS B2311, JIS B2312, JIS B2313, DIN 2615, DIN 2616, DIN 2617. DIN 2616, DIN 2617.  
 Production range: 1/2"~100" (DN15~DN2500), pipe cap (DN15~DN3000).  
 Wall thickness: Sch5~Sch160(1.5mm~100mm).  
 Material: Austenitic stainless steel: 304, 304L, 316, 316L, 317L, 310S, 321, etc.  
 Duplex stainless steel: S31803(2205), 32205, S32760, S32750, etc.  
 Production process: cold pushing, cold extrusion.  
 Surface finish:  
 Alloy steel type: coating, surface treatment can be provided according to customer requirements;  
 type: polishing, sandblasting treatment after passivation treatment.



## Nickel alloy seamless pipe and fittings

**Out diameter range:**  
8mm -610mm

**Wall thickness range:**  
0.6-50mm

**Grade:**  
nickel200/201, alloy 400, alloy 600/601, alloy625, alloy800/800H/800HT, alloy825, alloy C-22, alloy C-276, etc.

**Standard:**  
ASTM B161, ASTM B163, ASTM B165, ASTM B167, ASTM B444, ASTM B622, ASTM B407, ASTM B366, etc.

**Surface finish:**  
Annealed & Pickled; bright annealed & Pickled

**Tube Form:**  
straight pipe/tube, super-long straight tube; U-tube; Coiled tube

**Type:**  
welded; seamless



## Copper plate

**Thickness range** :

0.5mm - 150mm

**Width range** :

600mm - 3000mm

**Length range** :

1500mm - 6000mm

**Grade** :

C11000/CW004A/C1100, C10200/CW008A/C1020, C12200/C1220, C26800, C26000, C2680, C28000, C2800, C70600, C7060, 71500, 7150, etc.

**Standard** :

ASTM B152/152M/JIS H3100/EN 13599, ASTM B36/36M, ASTM B171/B171M, etc.

**Plate Form** :

Hot rolled plate, Cold rolled plate, Cold rolled plate, Cupronickel plate



## Copper tube

**Out diameter range**

10mm - 368mm

**Wall thickness range**

1mm- 65mm

**Length range** :

500mm - 7500mm

**Grade**

C71500/BFe30 -1-1 C11000/CW004A, C10200/CW008A, C12000, C1100, C1020, C1220, C23000, C28000, C70600/BFe10-1-1, C71500/BFe30-1-1

**Standard**

ASTM B188/EN12449/JIS H3300, ASTM B135/B135M, ASTM B466/B466M,etc.

**Tube Form**

extruded/drawn smls copper tubes, extruded/drawn brass tubes, extruded/drawn cupronickel tubes



# Flanges

Type: Plain flange, weld-neck flange, butt-weld flange, socket-weld flange, threaded flange, loose flange and all kinds of special flange.  
 Standards : ANSI B16.5, ANSI B16.47 Series A&B, JISB2220, DIN2527~DIN2637  
 Production range: 1/2"~120" (DN15~DN3000)  
 Pressure type: from 150 lbs. to 10000 lbs.  
 Material:  
 Austenitic stainless steel: 304, 304L, 316, 316L, 317L, 321, 347H, 310s, etc.  
 Duplex stainless steel: S31803(2205), S32205, S32750, Nickel alloy etc  
 Production process: Precision machining after hot forging and forming

## ASME

### Blind Flange BL Flange

- FF/RF/RTJ
- Size:1/2"-40"
- Class:150L B-2500LB
- Standard: ASME B16.5, ASME B16.48, ASME B16.47 SERIES A, ASME B16.47 SERIES B



### Slip On Flange SO Flange

- FF/RF/RTJ
- Size:1/2"-24"
- Class:150LB-900LB
- Standard: ASME B16.5



### Weldneck Flange WN Flange

- FF/RF/RTJ
- Size:1/2"-40"
- Class:150LB-2500LB
- Standard: ASME B16.5, ASME B16.47 SERIES A, ASME B16.47 SERIES B



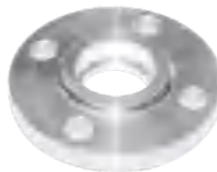
### Lapped Flange LF Flange

- FF
- Size:1/2"-24"
- Class:150L B-2500LB
- Standard: ASME B16.5



### Socket Welding Flange SW Flange

- FF/RF/RTJ
- Size:1/2"-3"
- Class:150LB-1500LB
- Standard: ASME B165



### Threaded Flange TH Flange

- FF/RF/RTJ NPT/RC/BSPT
- Size:1/2"-6"
- Class:150LB-300LB
- Standard: ASME B16.5



### Spectacle Blind Flange

- FF/RF/RTJ
- Size:1/2"-24"
- Class:150LB-2500LB
- Standard: ASME B16.48



### Line Spade and Spacer

- F/RF/RTJ
- Size:1/2"-24"
- Class:150LB-2500LB
- Standard: ASME B16.48



### Nipoflange

- FF/RF/RTJ
- Size:1/2"\*2"-24"\*36"
- Class:150LB-2500LB
- Standard: ASME B16.48



### Weldoflange

- FF/RF/RTJ
- Size:1/2"\*2"-24"\*36"
- Class:150LB-2500LB
- Standard: ASME B16.48



### Long Weldneck Flange LWN Flange

- FF/RF/RTJ
- Size:1/2"-24"
- Class:150LB-2500LB
- Standard: ASME B165



# EN1092

<b>Material</b>	1.4301 1.4406 1.4541 1.4404 1.4571
	1.4435 1.4550 1.4539 1.4462 1.4410

## Slip On Flange SO Flange

- FF/RF/RTJ, TYPE 12
- Size:DN15-DN1000
- Class:PN0.6MPa-PN42MPa
- Standard: EN1092-1 BS4504 DIN2502



## Weldneck Flange WN Flange

- FF/RF/RTJ, TYPE 11
- Size: DN15-DN1000
- Class:PN0.6MPa-PN42MPa
- Standard: EN1092-1 BS4504 DIN2502



## Hubbed Threaded Flange TH Flange

- FF/RF/RTJ, TYPE 13
- Size:1/2"-3"
- Class:PN0.6MPa-PN42MPa
- Standard: EN1092-1 BS4504 DIN2502



## Plate Flange TYPE 01A/B PL Flange

- FF/RF
- Size:DN15-DN1000
- Class:PN0.6MPa-PN42MPa
- Standard: EN1092-1 BS4504 DIN2502



## Weldring Neck TYPE 35

- FF/RF
- Size:DN15-DN600
- Class:PN0.6MPa-PN42MPa
- Standard: EN1092-1 BS4504 DIN2502



## Weld-on Collar Plate TYPE 32

- FF
- Size:DN15-DN1000
- Class:PN0.6MPa-PN42MPa
- Standard: EN1092-1 BS4504 DIN2502



## Blind Flange BL Flange

- FF/RF/RJ, TYPE 05
- Size:DN15-DN1000
- Class:PN0.6MPa-PN42MPa
- Standard: EN1092-1 BS4504 DIN2502



## Flanges

- FF/RF/RTJ
- Size:1/2"-40"&DN15-DN1000
- Class:150LB-2500LB&PN0.6MPa-PN42MPa
- Standard: ASME B16.5 ASME B16.48  
ASME B16.47 SERIES A  
ASME B16.47 SERIES B  
EN1092-1 BS4504 DIN2502





Nuts



Hex Bolts



Washers



Threaded rods



Nickel alloy fasteners



Titanium Fasteners

## FASTENERS

**Common Standard:**

Threaded rods : ASTM A193, A307, A36, DIN 975, ISO 898-1

Washers: ANSI/ASME B18.22.1, DIN 125, ISO 7089 (Flat Washers); DIN 127, ISO 7090 (Spring Washers)

Nuts: ASTM A194, ANSI/ASME B18.2.2, DIN 934, ISO 4032

Hex Bolts: ASTM A307, ANSI/ASME B18.2.1, DIN 933, ISO 4014

**Common Material:**

Stainless Steel (304, 316)

Nickel alloy(N02201, N02200, N04400, N10276, N6001, N06020, N06022, N06030, N06035, N08800, N08810, N06600, N06025, N06045, N06601, N08825, N07718, N07080, N07725, N09925...)

Titanium alloy(Ti Gr.2, Ti Gr.5...)

Specification: Diameter: M6 to M64; Length: Customizable

## FINNED TUBE



### Extruded Finned Tube

The extruded finned tube is made by compressing a metal tube with a metal sleeve (usually aluminum) that is heated and then mechanically deformed to create fins that are bonded to the tube. This type of finned tube provides good thermal conductivity and corrosion resistance. The continuous metal structure between the fins and the tube supports effective heat transfer. Extruded finned tubes are suitable for applications in high-temperature environments, such as power plants, chemical processing, and HVAC systems.



### Spiral Wound Finned Tube

The spiral wound finned tube is created by winding a metal strip (usually aluminum or copper) helically around a base tube and bonding it in place. This design increases the surface area for heat transfer, enhancing the efficiency of heat exchangers. Spiral wound finned tubes are widely used in applications such as boilers, heat exchangers, and refrigeration systems, where enhanced thermal performance is beneficial. Their construction makes them suitable for applications involving both gases and liquids.



### Embedded Finned Tube

The embedded finned tube is produced by inserting metal fins into grooves cut into the surface of a base tube. The fins are then bonded into the grooves, providing a tight, mechanical connection. This method supports high heat transfer efficiency and mechanical stability. Embedded finned tubes are effective in situations where thermal stress is a concern, such as in oil refineries, petrochemical plants, and other industrial environments. They offer good durability and performance under various conditions.



## Stainless steel prefabricated pipe

**Type:**

Multi-pass prefabricated pipe, liquid cargo transfer pipe, collection pipe, etc.

**Standard:**

according to the client's drawing.

**Production range:**

DN15 ~ DN1200, 1/2" - 48" (21.3mm - 1219mm)

**Pressure range:**

PN0.6MPa-PN6.3MPa, or CLASS150~CLASS600

**Product material:**

304/304L, 304, 304L, 316/316L, 316, 316L, duplex steel; super duplex stainless steel.

**Surface finish:**

pickling, shot blasting, passivation

## MATERIALS THAT WE CAN PRODUCE

Chemical Composition																			
Nickel		Ni	Fe	Cu	Mn	C	Si	S											
Nickel 200	N02000	99.0 min	0.4 max	0.25 max	0.35 max	0.15 max	0.35 max	0.010 max											
Nickel 201	N02001	99.0 min	0.4 max	0.25 max	0.35 max	0.02 max	0.35 max	0.010 max											
Ni-Cu Alloy		Ni	Cu	Fe	Mn	C	Si	S	Al	Ti									
Alloy 400	N04400	63.0 min	28.0 34.0	2.5 max	2.0 max	0.30 max	0.50 max	0.024 max											
Alloy K-500	N05500	63.0 min	27.0 33.0	2.0 max	1.5 max	0.18 max	0.50 max	0.010 max	2.30 3.15	0.35 0.85									
Ni-Cr-Fe Alloy		Ni	Cr	Fe	Mo	Cu	Mn	C	Si	S	P	Nb+Ta	Co	W					
Alloy 600	N06600	72.0 min	14.0 17.0	6.0 10.0		0.50 max	1.00 max	0.15 max	0.50 max	0.015 max									
Alloy 690	N06690	58.0 min	27.0 31.0	7.0 11.0		0.50 max	0.50 max	0.05 max	0.50 max	0.015 max									
Alloy X	N06002	Remainder	20.5 23.0	17.0 20.0	8.0 10.0	Remainder	1.00 max	0.05 0.15	1.00 max	0.030 max	0.040 max		0.50 2.50	0.20 1.00					
Alloy 020	N08020	32.0 38.0	19.0 21.0	Remainder	2.0 3.0	3.0 4.0	2.00 max	0.07 max	1.00 max	0.035 max	0.045 max	8xC 1.00							
Alloy 028	N08028	30.0 34.0	26.0 28.0	Remainder	3.0 4.0	0.60 1.40	2.50 max	0.03 max	1.00 max	0.030 max	0.030 max								
Ni-Cr Alloy		Ni	Cr	Fe	Mo	Nb+Ta	Al	Ti	Mn	C	Si	S	P	Cu	Co	B			
Alloy 718	N07718	50.0 55.0	17.0 21.0	Remainder	2.8 3.3	4.75 5.50	0.20 0.80	0.65 1.15	0.35 max	0.08 max	0.35 max	0.015 max	0.015 max	0.30 max	1.00 max	0.006 max			
Alloy X-750	N07750	70.0 min	14.0 17.0	5.0 9.0		0.70 1.20	0.40 1.00	2.25 2.75	1.00 max	0.08 max	0.50 max	0.010 max		0.50 max	1.00 max				
Alloy 80A	N07080	Remainder	18.0 21.0	3.0 max			0.50 1.80	1.80 2.70	1.00 max	0.10 max	1.00 max	0.015 max							
Ni-Cr-Mo Alloy		Ni	Cr	Mo	Fe	Mn	C	Si	S	P	Nb+Ta	Al	Ti	Cu	W	Co	V		
Alloy 625	N06625	58.0 min	20.0 23.0	8.0 10.0	5.0 max	0.50 max	0.10 max	0.50 max	0.015 max	0.015 max	3.15 4.15	0.40 max	0.40 max						
Alloy-725	N07725	55.0 59.0	19.1 22.5	7.0 9.5	Remainder	0.35 max	0.03 max	0.20 max	0.010 max	0.015 max	2.75 4.00	0.35 max	1.00 1.7						
Alloy 686	N06686	Remainder	19.0 23.0	15.0 17.0	5.0 max	0.75 max	0.01 max	0.08 max	0.020 max	0.040 max			0.02 0.25	3.00 4.40					
Alloy C-4	N06455	Remainder	14.0 18.0	14.0 17.0	3.0 max	1.00 max	0.015 max	0.08 max	0.030 max	0.040 max			0.70 max		2.00 max				
Alloy C-22	N06022	Remainder	20.0 22.5	12.5 14.5	2.0 6.0	0.50 max	0.015 max	0.08 max	0.020 max	0.020 max				2.50 3.50	2.50 max	0.35 max			
Alloy C-2000	N06200	Remainder	22.0 24.0	15.0 17.0	3.0 max	0.50 max	0.01 max	0.08 max	0.010 max	0.025 max		0.50 max		1.30 1.90	2.00 max				
Alloy G-30	N06030	Remainder	28.0 31.5	4.0 6.0	13.0 17.0	1.50 max	0.03 max	0.80 max	0.020 max	0.040 max	0.30 1.50			1.00 2.40	1.50 4.00	5.00 max			
Alloy G-35	N06035	Remainder	32.25 34.25	7.6 9.0	2.0 max	0.50 max	0.05 max	0.60 max	0.015 max	0.030 max		0.40 max		0.30 max	0.60 max	1.00 max	0.20 max		
Ni-Fe-Cr Alloy		Ni	Fe	Cr	Mn	C	Si	S	P	Al	Ti	Mo	Cu	Nb	Al+Ti				
Alloy 800	N08800	30.0 35.0	39.5 min	19.0 23.0	1.5 max	0.10 max	1.00 max	0.015 max		0.15 0.60	0.15 0.60		0.75 max						
Alloy-800H	N08810	30.0 35.0	39.5 min	19.0 23.0	1.5 max	0.05 0.10	1.00 max	0.015 max		0.15 0.60	0.15 0.60		0.75 max						
Alloy 800HT	N08811	30.0 35.0	39.5 min	19.0 23.0	1.5 max	0.06 0.10	1.00 max	0.015 max		0.15 0.60	0.15 0.60		0.75 max		0.85 1.20				
Alloy 825	N08825	38.0 46.0	22.0 min	19.5 23.5	1.0 max	0.05 0.10	0.50 max	0.030 max		0.20 max	0.60 1.20	2.5 3.5	1.50 3.00						
Alloy 925	N09925	42.0 46.0	22.0 min	19.5 22.5	1.0 max	0.03 max	0.50 max	0.030 max	0.030 max	0.10 0.50	1.90 2.40	2.5 3.5	1.50 3.00	0.50 max					
Ni-Mo Alloy		Ni	Mo	Cr	Fe	Mn	C	Si	S	P	W	Co	V	Cu	Al	Ti	Nb	Ta	Zr
Alloy B-2	N10665	Remainder	26.0 30.0	1.0 max	2.0 max	1.0 max	0.02 max	0.10 max	0.030 max	0.040 max		1.00 max							
Alloy B-3	N10675	65.0 min	27.0 32.0	1.0 3.0	1.0 3.0	3.0 max	0.01 max	0.10 max	0.010 max	0.030 max	3.00 max	3.00 max	0.20 max	0.20 max	0.50 max	0.20 max	0.20 max	0.20 max	0.10 max
Ni-Mo-Cr Alloy		Ni	Mo	Cr	Fe	Mn	C	Si	S	P	W	Co	V						
Alloy C-276	N10276	Remainder	15.0 17.0	14.5 16.5	4.0 7.0	1.00 max	0.01 max	0.08 max	0.030 max	0.040 max	3.00 4.50	2.50 max	0.35 max						

## STANDARD SIZE COMPARISON TABLE

STM A2130A 213M			ASTM A312.A312M	
Type	(O.D.)mm	Permitted variations (mm)	(O.D.)mm	Permitted variations (mm)
Hot finished tube	≤101.6	+0.4/-0.8	10.3~48.3	+0.40/-0.80
	>101.6-190.5	+0.4/-1.2	>483~114.3	+0.80/-0.80
	>190.5~228.6	+0.4/-1.6	>114.3~219.1	+1.60/-0.80
Cold finished tube	<254	+0.1/-0.1	>219.1~457	+2.40/-0.80
	25.4~38.1	+0.15/-0.15	>457~660.4	+3.20/-0.80
	>38.1-50.8	+0.2/-0.2	>660.4-864	+4.00/-0.80
	≥50.8~63.5	+0.25/-0.25	>864-1219	+4.80/-0.80
	≥63.5~76.2	+0.3/-0.3		
	≥76.2~101.6	+0.38/-0.38		
	>101.6~190.5	+0.38/-0.64		
	>190.5-228.6	+0.38/1.14		
Type	Thickness	Permitted variations	Thickness	Permitted variations
Hot finished tube	≤2.4	+40%/-0	10.3~73	+205%~-12.55%
	>2.4~4.6	+35%/-0	88.9~457,S/D≤5%	+22.55%~-12.55%
	>3.8~4.6	+33%/-0	88.9~457,S/D>5%	+15.05%~-12.55%
	>4.6	+28%/-0	≥508,S/D≤5%	+22.55%~-12.55%
Cold finished tube	O.D.≤38.1mm	+20%/-0	≥508,S/D>5%	+15.05%~-12.55%
	O.D.>38.1mm	+22%/-0		

DIN17456				DIN17458			ASTM A789 A789M		
O.D. tolerance (mm)	O.D.(mm)	Tolerance level	Permitted variations	O.D.(mm)	Tolerance level	Permitted variations	O.D.(mm)	Permitted variations	
	da≤219.1		D2	±1% MIN±0.5mm	da≤219.1	D2	±1% MIN±0.5mm	≤12.7	±13
			D3	±0.75% MIN±0.3mm				>12.7~38.1	±0.13
			D4	±0.5% MIN±0.1mm				>38.1~88.9	±0.25
Thickness tolerance (mm)	Thickness	Tolerance level	Permitted variations	Thickness	Tolerance level	Permitted variations	>88.9~139.7	±0.38	
							>139.7~203.2	±0.76	
da≤219.1		T3	±10% MIN±0.2mm	da≤219.1	T3	±10% MIN±0.2mm	≤12.7	±15%	
							>12.7~38.1	±10%	
							>38.1~88.9	±10%	
							>88.9~139.7	±10%	
							>139.7~203.2	±10%	

## PIPE DIMENSION AND TOLERANCE ACCORDING TO ASTM A312/ANSI B36.10&B36.19

INCH	DN	O.D.(mm)	Wall Thickness (mm)														
			Sch5s/5	Sch10s	Sch10	Sch20	Sch30	Sch40s/STD	Sch40	Sch80s/XS	Sch80	Sch100	Sch120	Sch140	Sch160	SchXXS	
1/8	6	10.3	0.89	1.24					1.73	1.73	2.41	2.41					
1/4	8	13.7	1.25	1.65					2.24	2.24	3.02	3.02					
3/8	10	17.1	1.25	1.65					2.31	2.31	3.2	3.2					
1/2	15	21.3	1.65	2.11					2.77	2.77	3.73	3.73				4.78	
3/4	20	26.7	1.65	2.11					2.87	2.87	3.91	3.91				5.56	
1	25	33.4	1.65	2.77					3.38	3.38	4.55	4.55				6.35	
1 1/4	32	42.2	1.65	2.77					3.56	3.56	4.85	4.85				6.35	
1 1/2	40	48.3	1.65	2.77					3.68	3.68	5.08	5.08				7.14	
2	50	60.3	1.65	2.77					3.91	3.91	5.54	5.54				8.74	7.47
2 1/2	65	73	2.11	3.05					5.16	5.16	7.01	7.01				9.53	7.82
3	80	88.9	2.11	3.05					5.49	5.49	7.62	7.62				11.13	9.09
3 1/2	90	101.6	2.11	3.05					5.74	5.74	8.08	8.08					9.7
4	100	114.3	2.11	3.05					6.02	6.02	8.56	8.56		11.13		13.49	10.15
5	125	141.3	2.77	3.4					6.55	6.55	9.53	9.53		12.7		15.88	11.07
6	150	168.3	2.77	3.4					7.11	7.11	10.97	10.97		14.27		18.26	14.02
8	200	219.1	2.77	3.76		6.35	7.04	8.18	8.18	12.7	12.7	15.09	18.26	20.62	23.01	15.25	
10	250	273.1	3.4	4.19		6.35	7.8	9.27	9.27	12.7	15.09	18.26	21.44	25.4	28.58		
12	300	323.9	3.96	4.57		7.92	8.38	9.53	10.31	12.7	17.48	21.44	25.4	28.58	33.32	17.12	
14	350	355.6	3.96	4.78	6.35	7.92	9.53	9.53	11.13	12.7	19.05	23.83	27.79	31.75	35.71	19.05	
16	400	406.4	4.19	4.78	6.35	7.92	9.53	9.53	12.7	12.7	21.44	26.19	30.96	36.53	40.49	21.95	
20	500	508	4.78	5.54	6.35	9.53	12.7	9.53	15.09	12.7	26.19	32.54	38.1	44.45	50.01	22.23	
22	550	559	4.78	5.54	6.35	9.53	12.7	9.53		12.7	28.58	34.93	41.28	47.63	53.98	25.4	
24	600	609.6	5.54	6.35	6.35	9.53	14.27	9.53	17.48	12.7	30.96	38.89	46.02	52.37	59.54	25.4	
26	650	660			7.92	9.53				12.7							
28	700	711			7.92	12.7	15.88			12.7							
30	750	762	6.35	7.92	7.92	12.7	15.88			12.7							
32	800	813			7.92	12.7	15.88		17.48	12.7							
34	850	864			7.92	12.7	15.88		17.48	12.7							
36	900	914			7.92	12.7	15.88		17.48	12.7							
38	950	965								12.7							
40	1000	1016								12.7							
42	1050	1068								12.7							
44	1100	1118								12.7							
46	1168	1168								12.7							
48	1219	1219								12.7							

## STAINLESS STEEL CHEMICAL COMPOSITION TABLE

Chemical compositions																
Standard	GRADE	C	Mn	P	S	Si	Cr	Ni	Mo	N	Cu	Ti	Al	Nb		
A312	TP304	0.08	2.00	0.045	0.030	1.00	18.0-20.0	8.0-11.0								
	TP304L	0.035	2.00	0.045	0.030	1.00	18.0-20.0	8.0-13.0								
	TP304H	0.04-0.10	2.00	0.045	0.030	1.00	18.0-20.0	8.0-11.0								
	TP310S	0.08	2.00	0.045	0.030	1.00	24.0-26.0	19.0-22.0	0.75							
	TP316	0.08	2.00	0.045	0.030	1.00	16.0-18.0	11.0-14.0	2.00-3.00							
	TP316L	0.035	2.00	0.045	0.030	1.00	16.0-18.0	10.0-14.0	2.00-3.00							
	TP316H	0.04-0.10	2.00	0.045	0.030	1.00	16.0-18.0	11.0-14.0	2.00-3.00							
	TP321	0.08	2.00	0.045	0.030	1.00	17.0-19.0	9.0-12.0			0.10		5xC-0.70			
A312	N08904	0.020	2.00	0.040	0.030	1.00	19.0-23.0	23.0-28.0	4.0-5.0	0.10	1.00-2.00					
	TP3504	0.08	2.00	0.045	0.030	1.00	18.0-20.0	8.0-11.0								
	TP304L	0.035	2.00	0.045	0.030	1.00	18.0-20.0	8.0-12.0								
	TP304H	0.04-0.10	2.00	0.045	0.030	1.00	18.0-20.0	8.0-11.0								
	TP310S	0.08	2.00	0.045	0.030	1.00	24.0-26.0	19.0-22.0								
	TP316	0.08	2.00	0.045	0.030	1.00	16.0-18.0	10.0-14.0	2.00-3.00							
	TP316L	0.035	2.00	0.045	0.030	1.00	16.0-18.0	10.0-14.0	2.00-3.00							
	TP316H	0.04-0.10	2.00	0.045	0.030	1.00	16.0-18.0	11.0-14.0	2.00-3.00							
A269	TP321	0.08	2.00	0.045	0.030	1.00	17.0-19.0	9.0-12.0				5x(C+N)-0.70				
	TP304	0.08	2.00	0.045	0.030	1.00	18.0-20.0	8.0-11.0								
	TP304L	0.035	2.00	0.045	0.030	1.00	18.0-20.0	8.0-12.0								
	TP316	0.08	2.00	0.045	0.030	1.00	16.0-18.0	10.0-14.0	2.00-3.00							
	TP316L	0.035	2.00	0.045	0.030	1.00	16.0-18.0	10.0-15.0	2.00-3.00							
	TP321	0.08	2.00	0.045	0.030	1.00	17.0-19.0	9.0-12.0				5x(C+N)-0.70				
A268	N0894	0.020	2.00	0.040	0.030	1.00	19.0-23.0	23.0-28.0	4.0-5.0	0.10	1.00-2.00					
	TP405	0.08	1.00	0.040	0.030	1.00	0.50	11.5-14.5					0.10-0.30			
	TP410	0.15	1.00	0.040	0.030	1.00		11.5-13.5								
	TP430	0.12	1.00	0.040	0.030	1.00		16.0-18.0								
A789	TP446	0.20	1.50	0.040	0.030	1.00	0.75	23.0-27.0		0.25						
	S31803	0.030	2.00	0.030	0.020	1.00	4.5-6.5	21.0-23.0	2.5-3.5	0.08-0.20						
	S32205	0.030	2.00	0.030	0.020	1.00	4.5-6.5	22.0-23.0	3.0-3.5	0.14-0.20						
EN10216-5	1.4301	0.07	2.00	0.040	0.015	1.00	17.00-19.50	8.00-10.50		0.11						
	1.4307	0.030	2.00	0.040	0.015	1.00	17.50-19.50	8.00-10.00		0.11						
	1.4401	0.07	2.00	0.040	0.015	1.00	16.50-18.50	10.00-13.00	2.00-2.50	0.11						
	1.4404	0.030	2.00	0.040	0.015	1.00	16.50-18.50	10.00-13.00	2.00-2.50	0.11						
	1.4541	0.08	2.00	0.040	0.015	1.00	17.00-19.00	9.00-12.00				5xC-0.70				
	1.4335	0.08	2.00	0.040	0.015	1.00	24.00-26.00	20.00-22.00	0.11	0.20						
JIS G3463-94	1.4462	0.03	2.00	0.035	0.015	1.00	21.00-23.00	4.50-6.50	2.50-3.50	0.10-0.22						
	SUS304	0.08	2.00	0.040	0.030	1.00	18.00-20.00	8.00-11.00								
	SUS304L	0.030	2.00	0.040	0.030	1.00	18.00-20.00	9.00-13.00								
	SUS316	0.08	2.00	0.040	0.030	1.00	16.00-18.00	10.00-14.00	2.00-3.00							
	SUS316L	0.030	2.00	0.040	0.030	1.00	16.00-18.00	12.00-16.00	2.00-3.00							
	SUS310S	0.0	2.00	0.040	0.030	1.50	24.00-26.00	19.00-22.00								
	SUS321	0.08	2.00	0.040	0.030	1.00	17.00-20.00	9.00-13.00				≥5xC%				
	SUS405	0.08	1.00	0.040	0.030	1.00	11.50-14.50						0.10-0.30			
SUS410	0.15	1.00	0.040	0.030	1.00	11.50-13.50										
SUS430	0.12	1.00	0.040	0.030	0.75	16.00-18.00										

## TYPICAL MECHANICAL PROPERTIES

Alloy	UNS Designation	EN/DIN W.Nr	Condition	Tensile Strength		Yield Strength		Elongation %	Hardness NACE MR-0175
				Ksi	Mpa	Ksi	Mpa		
Nickel									
Nickel200	N02200	2.4066	Annealed	55	380	15	105	40	
Nickel201	N02201	2.4068	Annealed	50	345	10	70	40	
Ni-Cu Alloy									
Alloy 400	N04400	2.4360	Annealed	70	483	25	172	35	HRC35max
Alloy k-500	N05500	2.4375	Aged	140	965	100	690	20	HRC27-35
Ni-Cr Alloy									
Alloy 718	N07718	2.4668	Aged	185	1275	150	1034	12	HRC35-40
Alloy X-750	N07750	2.4669	Aged	170	1170	115	790	18	HRC35max
Alloy 80A	N07080	2.4952	Aged	135	930	90	620	20	
Ni-Cr-Fe Alloy									
Alloy 600	N06600	2.4816	Annealed	80	552	35	241	30	HRC35max
Alloy 690	N06690	2.4642	Annealed	85	585	35	241	30	
Alloy X	N06002	2.4665	Aged	100	690	35	241	35	HRC35max
Alloy 020	N08020	...	Annealed	90	620	45	300	40	HRC32max
Alloy 028	N08028	1.4563	Annealed	73	500	31	214	40	HRC33max
Ni-Cr-Mo Alloy									
Alloy 625	N06625	2.4865	Annealed	120	827	60	414	30	HRC35max
Alloy 725	N07725	...	Aged	150	1034	120	827	20	HRC43max
Alloy 686	N06686	2.4606	Sol Annealed	100	690	45	310	45	HRC40max
Alloy C-4	N06455	2.4610	Sol Annealed	100	690	40	276	40	
Alloy C-22	N06022	2.4602	Sol Annealed	100	690	45	310	45	HRC40max
Alloy C-2000	N06200	2.4675	Sol Annealed	100	690	41	283	45	
Alloy G-30	N06030	2.4603	Sol Annealed	100	690	45	310	60	HRC41max
Alloy C-35	N05035	2.4643	Sol Annealed	85	585	35	241	30	
Ni-Fe-Cr Alloy									
Alloy 800	N08800	1.4876	Annealed	75	517	30	207	30	HRC35max
Alloy 800H	N08810	1.4958	Annealed	65	448	25	172	30	HRC35max
Alloy 800HT	N08811	1.4959	Annealed	65	448	25	172	30	HRC35max
Alloy 805	N08825	2.4858	Annealed	85	586	35	241	30	HRC35max
Alloy 925	N09925	...	Aged	140	965	110	758	18	HRC35max
Ni-Mo Alloy									
Alloy B-2	N10665	...	Annealed	110	760	51	350	40	
Alloy B-3	N10675	2.4600	Annealed	110	760	51	350	40	
Ni-Mo-Cr Alloy									
Alloy C-276	N10276	2.4819	Annealed	100	690	41	283	40	HRC35max

## SPECIFICATIONS

Alloy	UNS No	Forgings Billet /Bar for Reforging Bar, Rod, Wire	Plate Sheet Strip	Sm's Pipe & Tube Condenser & Heat Exchanger Tube	Fittings ASTM B366	Flanges Forged Fittings Valve Parts	Material for Oilfield Equipment
<b>Nickel</b>							
Nickel200	N02200	ASTM B564,ASTM B160	ASTM B162	ASTMB161,ASTMB163	WPN		
Nickel201	N02201	ASTM B160	ASTM B162	ASTMB161,ASTMB163	WPNL		
<b>Ni-Cu Alloy</b>							
Alloy 400	N04400	ASTM B564,ASTM B164	ASTM B127	ASTMB165,ASTMB163	WPNC		NACEMR-0175
Alloy k-500	N05500	ASTM B865					NACEMR-0175
<b>Ni-Cr Alloy</b>							
Alloy 718	N07718	ASTM B637,AMS 5662,AMS S663				ASTM B637	NACEMR-0175,API6A718
Alloy X-750	N07750	ASTM B637,AMS 5667				ASTM B637	NACEMR-0175,API6A718
Alloy 80A	N07080	ASTM B637				ASTM B637	
<b>Ni-Cr-Fe Alloy</b>							
Alloy 600	N06600	ASTMB564,ASTM B472,ASTM B166	ASTM B168	ASTMB167,ASTMB163	WPNCI		NACEMR-0175
Alloy 690	N06690	ASTMB564,ASTMB166	ASTM B168	ASTMB167,ASTMB163			
Alloy X	N06002	ASTM B472,ASTMB572,ASTMB5754	ASTM B435	ASTMB622	WPHX		NACEMR-0175
Alloy 020	N08020	ASTMB472,ASTM B473	ASTM B463	ASTMB729	WP20CB	ASTM B462	
Alloy 028	N08028	EN10088-2	ASTM B709	ASTMB668			NACEMR-0175
<b>Ni-Cr-Mo Alloy</b>							
Alloy 625	N06625	ASTMB564,ASTM B472,ASTMB446	ASTM B443	ASTMB444	WPNCMC		NACEMR-0175
Alloy 725	N07725	ASTMB637,ASTM B806				ASTM B637	NACEMR-0175,API6A718
Alloy 686	N06686	ASTMB564,ASTM B574	ASTM B575			ASTM B462	NACEMR-0175
Alloy C-4	N06455	ASTMB574	ASTM B575	ASTMB622	WPHC4		
Alloy C-22	N06022	ASTMB564,ASTMB472,ASTMB574	ASTM B575	ASTMB622	WPHC22	ASTM B462	NACEMR-0175
Alloy C-2000	N06200	ASTMB564,ASTMB472,ASTMB574	ASTM B575	ASTMB622	WPHC200	ASTM B462	
Alloy G-30	N06030	ASTMB472,ASTMB581	ASTM B582	ASTMB622	WPHG30	ASTM B462	NACEMR-0175
Alloy C-35	N05035	ASTMB564,ASTMB472,ASTMB574	ASTM B575	ASTMB622	WPHG35	ASTM B462	
<b>Ni-Fe-Cr Alloy</b>							
Alloy 800	N08800	ASTMB564,ASTMB408	ASTM B409	ASTMB407,ASTMB163	WPNIC		NACEMR-0175
Alloy 800H	N08810	ASTMB564,ASTMB408	ASTM B409	ASTMB407,ASTMB163	WPNIC10		NACEMR-0175
Alloy 800HT	N08811	ASTMB564,ASTMB408	ASTM B409	ASTMB407,ASTMB163	WPNIC11		NACEMR-0175
Alloy 805	N08825	ASTMB564,ASTMB425	ASTM B424	ASTMB423,ASTMB163	WPNICMC		NACEMR-0175
Alloy 925	N09925	ASTMB637				ASTM B637	NACEMR-0175,API6A718
<b>Ni-Mo Alloy</b>							
Alloy B-2	N10665	ASTM B564,ASTM B472	ASTM B333	ASTMB622	WPHB-2	ASTM B462	
Alloy B-3	N10675	ASTM B564,ASTM B472,ASTM B335	ASTM B333	ASTMB522	WPHB-3	ASTM B462	
<b>Ni-Mo-Cr Alloy</b>							
Alloy C-276	N10276	ASTM B564,ASTM B472,ASTM B574	ASTM B575	ASTMB622	WPHC-276	ASTM B462	NACEMR-0175

## Conversion of SWG and BWG number to wall thickness

Standard Wire Gauge(Formerly Imperial Wire Gauge)SWG		
Wall Thickness		
SWG	IN	MM
0 SWG	0.324	8.23
1SWG	0.300	7.62
2 SWG	0.276	7.01
3 SWA	0.252	6.40
4 SWG	0.232	5.89
5 SWG	0.212	5.38
6 SWG	0.192	4.88
7SWG	0.176	4.47
8 SWG	0.160	4.06
9 SWG	0.144	3.66
10 SWG	0.128	3.25
11SWG	0.116	2.95
12 SWG	0.104	2.64
13 SWG	0.092	2.34
14 SWG	0.080	2.03
15 SWG	0.072	1.83
16 SWG	0.064	1.63
17 SWG	0.056	1.42
18 SWG	0.048	1.22
19 SWG	0.040	1.02
20 SWG	0.036	0.91
21 SWG	0.032	0.81
22 SWG	0.028	0.71
23 SWG	0.024	0.61
24 SWG	0.022	0.56
25 SWG	0.020	0.51
26 SWG	0.018	0.46
27 SWG	0.0164	0.42
28 SWG	0.0148	0.38
29 SWG	0.0136	0.35
30 SWG	0.0124	0.31
31SWG	0.0116	0.29
32 SWG	0.0108	0.27
33 SWG	0.0100	0.25
34 SWG	0.0092	0.23
35 SWG	0.0084	0.21
36 SWG	0.0076	0.19
37 SWG	0.0068	0.17
38 SWG	0.0060	0.15
39 SWG	0.0052	0.13
40 SWG	0.0048	0.12

Birmingham Wire Gauge BWG		
Wall Thickness		
BWG	IN	MM
0 BWG	0.340	8.64
1 BWG	0.300	7.62
2 BWG	0.284	7.21
3 BWG	0.259	6.58
4 BWG	0.238	6.05
5 BWG	0.220	5.59
6 BWG	0.203	5.16
7 BWG	0.180	4.57
8 BWG	0.165	4.19
9 BWG	0.148	3.76
10 BWG	0.134	3.40
11 BWG	0.120	3.05
12 BWG	0.109	2.77
13 BWG	0.095	2.41
14 BWG	0.083	2.11
15 BWG	0.072	1.83
16 BWG	0.065	1.65
17BWG	0.058	1.47
18 BWG	0.049	1.24
19 BWG	0.042	1.07
20 BWG	0.035	0.89
21 BWG	0.032	0.81
22 BWG	0.028	0.71
23 BWG	0.025	0.64
24 BWG	0.022	0.56
25 BWG	0.020	0.51
26 BWG	0.018	0.46
27 BWG	0.016	0.41
28 BWG	0.014	0.36
29 BWG	0.013	0.33
30 BWG	0.012	0.30
31BWG	0.010	0.25
32 BWG	0.009	0.23
33 BWG	0.008	0.20
34 BWG	0.007	0.18
35 BWG	0.005	0.13
36 BWG	0.004	0.10

# Application Industries



## Oil and Gas pipeline

Toko Tech produces high-quality laser welded duplex steel, nickel alloy and stainless steel pipes for the demanding oil and gas market.



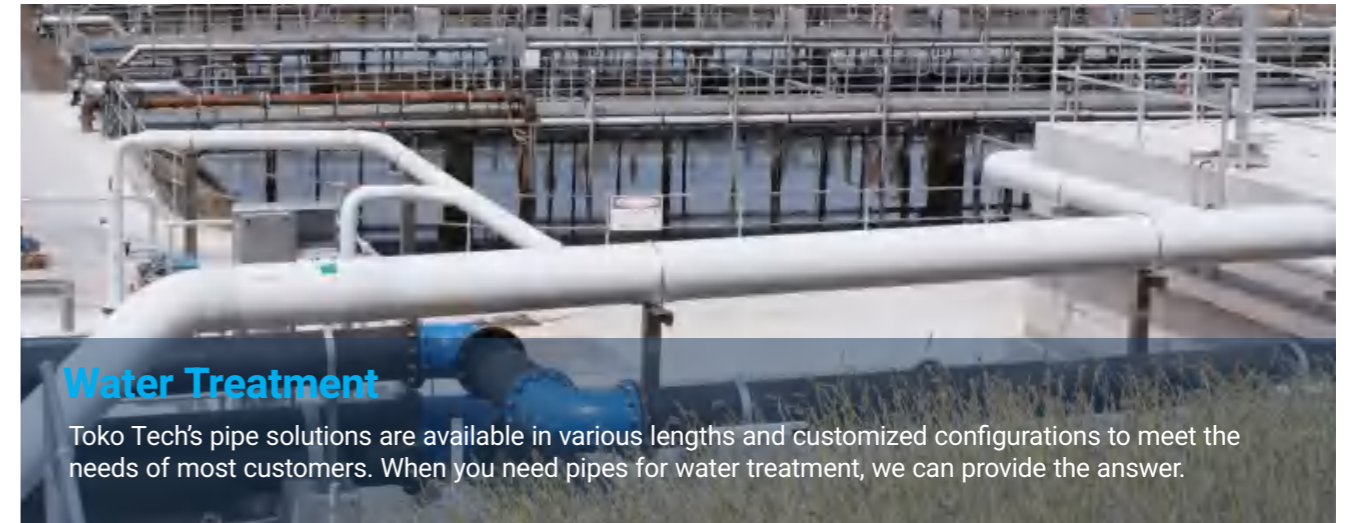
## Petrochemical

Toko Tech's welded and seamless anti-corrosion pipes provide solutions for medium to corrosive petrochemical applications.



## Desalination

Toko Tech produces a series of corrosion-resistant pipes for challenging desalination applications. Multi-effect distillation (MED) and multi-stage flash (MSF) plants require reliable brine/chloride-resistant pipes.



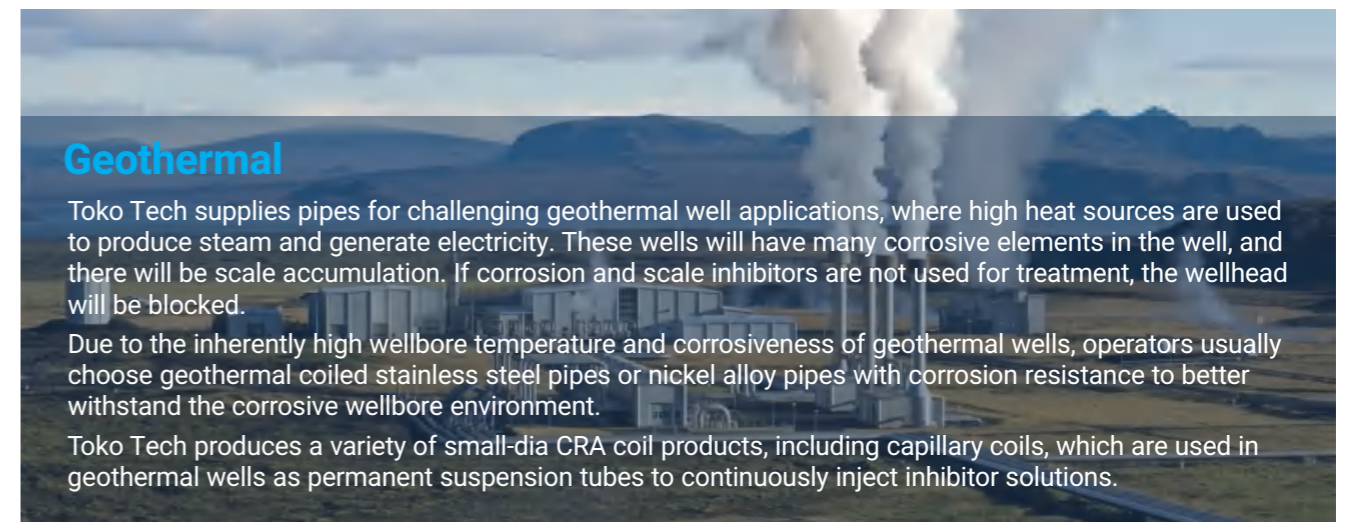
## Water Treatment

Toko Tech's pipe solutions are available in various lengths and customized configurations to meet the needs of most customers. When you need pipes for water treatment, we can provide the answer.



## Sugar Refining

The wide size range of Toko Tech's reliable pipe products and the ability to provide fast turnaround transportation make it an ideal partner for customers in the sugar refining industry. This is why customers from North America, Central America and South America rely on Toko Tech's stainless steel pipes to meet their seasonal sugar refining needs. Working with a supplier who understands your unique needs means the difference between operating as planned and dealing with unplanned production delays.



## Geothermal

Toko Tech supplies pipes for challenging geothermal well applications, where high heat sources are used to produce steam and generate electricity. These wells will have many corrosive elements in the well, and there will be scale accumulation. If corrosion and scale inhibitors are not used for treatment, the wellhead will be blocked.

Due to the inherently high wellbore temperature and corrosiveness of geothermal wells, operators usually choose geothermal coiled stainless steel pipes or nickel alloy pipes with corrosion resistance to better withstand the corrosive wellbore environment.

Toko Tech produces a variety of small-dia CRA coil products, including capillary coils, which are used in geothermal wells as permanent suspension tubes to continuously inject inhibitor solutions.