



NANYANG

Nanyang Steel

WENZHOU LONGWAN NANYANG STEEL PIPES FACTORY



南洋钢管

▷ 不断超越的品质

ISO9001-2000 Ceitified Company

▷ Step forward constantly

温州市龙湾南洋钢管厂
Wenzhou Longwan Nanyang Steel Pipes Factory



Shengyang factory



Cold-drawn machine



Cold-rolled machine



Finished products warehouse



Pipe nondestructive test



Direct-reading spectrum instrument which import from cgrmany



I.g.c.operattion



As an ISO9001-2000 certified company ,We are manufacturer and exporter of Stainless steel seamless pipes and tubes . Meanwhile ,also export other related stainless steel products, such as pipe fittings ,welded pipes,round bar,flanges and so on .

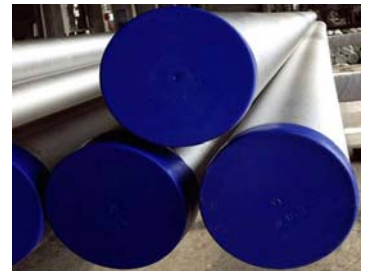


Material : **TP304,304L,304H,316,316H,316L,310s,316Ti, 321,321H,309H,347H**

Standard : **ASTM A 312,A213,A 269,A270,DIN 17456, DIN 17458,JIS 3459,JIS 3458 ,Gost 9941 ,Etc..**



Size: **OD (6MM ~600MM) (1/8" to 24")**
WT (0.8MM ~30MM) (5S/10S/40S/80S/160S/XXS)



Finish : pickling and annealed,mirror surface,Hairline...

Application :

petroleum ,Chemical industry , foodstuff ,
medical machinery ,smelting ,Aero-space ,
Shipbuilding ,high pressure boiler ,
heat exchanger ,water resources ,etc



日本JIS G3459不锈钢管尺寸及重量 JIS G3459 Pipe Sizes And Weights

NB	OD	SCH 5S		SCH 10		SCH 20S		SCH 40		SCH 80		SCH 120		SCH 160	
A (mm)	B (Inch)	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m	mm	kg/m
6	1/8	10.5	1.0	0.234	1.2	0.275	1.5	0.333	1.7	0.369	2.4	0.479			
8	1/4	13.8	1.2	0.373	1.65	0.494	2.0	0.582	2.2	0.629	3.0	0.799			
10	3/8	17.3	1.2	0.476	1.65	0.637	2.0	0.755	2.3	0.851	3.2	1.11			
15	1/2	21.7	1.65	0.816	2.1	1.02	2.5	1.18	2.8	1.31	3.7	1.64			4.7 1.97
20	3/4	27.2	1.65	1.04	2.1	1.30	2.5	1.52	2.9	1.74	3.9	2.24			5.5 2.94
25	1	34.0	1.65	1.32	2.8	2.15	3.0	2.29	3.4	2.57	4.5	3.27			6.4 4.36
32	1 1/4	42.7	1.65	1.67	2.8	2.76	3.0	2.94	3.6	3.47	4.9	4.57			6.4 5.73
40	1 1/2	48.6	1.65	1.91	2.8	3.16	3.0	3.37	3.7	4.10	5.1	5.47			7.1 7.27
50	2	60.5	1.65	2.39	2.8	3.98	3.5	4.92	3.9	5.44	5.5	7.46			8.7 11.1
65	2 1/2	76.3	2.1	3.84	3.0	5.42	3.5	6.28	5.2	9.12	7.0	12.0			9.5 15.6
80	3	89.1	2.1	4.51	3.0	6.37	4.0	8.39	5.5	11.3	7.6	15.3			11.1 21.4
90	3 1/2	101.6	2.1	5.15	3.0	7.29	4.0	9.63	5.7	13.5	8.1	18.7			12.7 27.8
100	4	114.3	2.1	5.81	3.0	8.23	4.0	10.9	6.0	16.0	8.6	22.4	11.1	28.2	13.5 33.6
125	5	139.8	2.8	9.46	3.4	11.4	5.0	16.6	6.6	21.7	9.5	30.5	12.7	39.8	15.9 48.6
150	6	165.2	2.8	11.2	3.4	13.6	5.0	19.8	7.1	27.7	11.0	41.8	14.3	53.2	18.2 66.0
200	8	216.3	2.8	14.7	4.0	20.9	6.5	33.6	8.2	42.1	12.7	63.8	18.2	88.9	23.0 110
250	10	267.4	3.4	22.1	4.0	26.0	6.5	41.8	9.3	59.2	15.1	93.9	21.4	130	28.6 168
300	12	318.5	4.0	31.0	4.5	34.8	6.5	50.0	10.3	78.3	17.4	129	25.4	184	33.3 234
350	14	355.6							11.1	94.3	19.0	158	27.8	225	35.7 282
400	16	406.4							12.7	123	21.4	203	30.9	286	40.5 365
450	18	457.2							14.3	156	23.8	254	34.9	363	45.2 459
500	20	508.0							15.1	184	26.2	311	38.1	411	50.0 565

日本JIS G3463锅炉、热交换器用不锈钢钢管尺寸及重量 Kg/m JIS G3463 Boiler And Heat Exchanger Tube Sizes And Weights

WT OD	1.2	1.6	2.0	2.3	2.6	2.9	3.2	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	8.0	9.5	11.0	12.5
15.9	0.435	0.564	0.686	0.771	0.853	0.930													
19.0	0.527	0.687	0.838	0.947	1.05	1.15													
21.7	0.607	0.793	0.972	1.10	1.22	1.34	1.46												
25.4	0.716	0.939	1.15	1.31	1.46	1.61	1.75	1.89											
27.2	0.769	1.01	1.24	1.41	1.58	1.74	1.89	2.05	2.29										
31.8	0.906	1.19	1.47	1.67	1.87	2.07	2.26	2.44	2.74	3.03									
34.0		1.28	1.58	1.80	2.01	2.22	2.43	2.63	2.96	3.27	3.58								
38.1		1.44	1.78	2.03	2.28	2.52	2.75	2.99	3.36	3.73	4.08	4.42							
42.7			2.01	2.29	2.57	2.85	3.12	3.38	3.82	4.24	4.65	5.05	5.43						
45.0			2.12	2.42	2.72	3.01	3.30	3.58	4.04	4.49	4.93	5.36	5.77	6.17					
48.6			2.30	2.63	2.95	3.27	3.58	3.89	4.40	4.89	5.38	5.85	6.30	6.75	7.18				
50.8			2.41	2.75	3.09	3.43	3.76	4.08	4.62	5.14	5.65	6.14	6.63	7.10	7.56	8.44	9.68	10.8	11.8
54.0			2.56	2.93	3.30	3.65	4.01	4.36	4.93	5.49	6.04	6.58	7.10	7.63	8.11	9.07	10.4	11.7	12.8
57.1			2.72	3.11	3.49	3.88	4.25	4.63	5.24	5.84	6.42	7.00	7.56	8.11	8.65	9.69	11.2	12.5	13.7
60.3			2.88	3.29	3.70	4.10	4.51	4.90	5.55	6.19	6.82	7.43	8.03	8.62	9.20	10.3	11.9	13.4	14.7
63.5				3.47	3.90	4.33	4.76	5.18	5.87	6.55	7.21	7.87	8.51	9.14	9.75	10.9	12.7	14.2	15.7
65.0				3.56	4.00	4.44	4.88	5.31	6.02	6.71	7.40	8.07	8.73	9.38	10.0	11.2	13.0	14.6	16.2
70.0				3.84	4.32	4.80	5.27	5.74	6.51	7.27	8.01	8.75	9.47	10.2	10.9	12.2	14.2	16.0	17.7
76.2				4.19	4.72	5.24	5.76	6.27	7.12	7.96	8.78	9.59	10.4	11.2	11.9	13.5	15.6	17.7	19.6
82.6							6.27	6.83	7.75	8.67	9.57	10.5	11.3	12.2	13.1	14.7	17.1	19.4	21.6
88.9							6.76	7.37	8.37	9.37	10.3	11.3	12.3	13.2	14.1	16.0	18.6	21.1	23.6
101.6								8.47	9.63	10.8	11.9	13.0	14.1	15.2	16.3	18.5	21.6	24.6	27.5
114.3									10.9	12.2	13.5	14.8	16.0	17.3	18.5	21.0	24.6	28.0	31.4
127.0									12.1	13.6	15.0	16.5	17.9	19.3	20.7	23.5	27.5	31.5	35.3
139.8												18.2	19.8	21.4	22.9	26.0	30.5	34.9	39.2

美标钢管尺寸

Stainless Steel Pipe Series (ANSI B 36.10; 36.19)

DN (Inch)	OD (mm)		5 S	5	10 S	10	20	30	STD	40 S	40	60	XS	80 S	80	100	120	140	160	XXS
1/8	10.3	WT			1.24	1.24		1.45	1.73	1.73	1.73		2.41	2.41	2.41					
		Kg/m			0.28	0.28		0.32	0.37	0.37	0.37		0.47	0.47	0.47					
1/4	13.7	WT			1.65	1.65		1.85	2.24	2.24	2.24		3.02	3.02	3.02					
		Kg/m			0.49	0.49		0.54	0.63	0.63	0.63		0.8	0.8	0.8					
3/8	17.1	WT			1.65	1.65		1.85	2.31	2.31	2.31		3.2	3.2	3.2					
		Kg/m			0.63	0.63		0.7	0.84	0.84	0.84		1.1	1.1	1.1					
1/2	21.3	WT	1.65	1.65	2.11	2.11		2.41	2.77	2.77	2.77		3.73	3.73	3.73				4.78	7.47
		Kg/m	0.8	0.8	1	1		1.12	1.27	1.27	1.27		1.62	1.62	1.62				1.95	2.55
3/4	26.7	WT	1.65	1.65	2.11	2.11		2.41	2.87	2.87	2.87		3.91	3.91	3.91				5.56	7.82
		Kg/m	1.02	1.02	1.28	1.28		1.44	1.69	1.69	1.69		2.2	2.2	2.2				2.9	3.64
1	33.4	WT	1.65	1.65	2.77	2.77		2.9	3.38	3.38	3.38		4.55	4.55	4.55				6.35	9.09
		Kg/m	1.29	1.29	2.09	2.09		2.18	2.5	2.5	2.5		3.24	3.24	3.24				4.24	5.45
1 1/4	42.2	WT	1.65	1.65	2.77	2.77		2.97	3.56	3.56	3.56		4.85	4.85	4.85				6.35	9.7
		Kg/m	1.65	1.65	2.69	2.69		2.87	3.39	3.39	3.39		4.47	4.47	4.47				5.61	7.77
1 1/2	48.3	WT	1.65	1.65	2.77	2.77		3.18	3.68	3.68	3.68		5.08	5.08	5.08				7.14	10.2
		Kg/m	1.9	1.9	3.11	3.11		3.54	4.05	4.05	4.05		5.41	5.41	5.41				7.25	9.55
2	60.3	WT	1.65	1.65	2.77	2.77		3.18	3.91	3.91	3.91		5.54	5.54	5.54				8.74	11.1
		Kg/m	2.39	2.39	3.93	3.93		4.48	5.44	5.44	5.44		7.48	7.48	7.48				11.1	13.4
2 1/2	73	WT	2.11	2.11	3.05	3.05		4.78	5.16	5.16	5.16		7.01	7.01	7.01				9.53	14
		Kg/m	3.69	3.69	5.26	5.26		8.04	8.63	8.63	8.63		11.4	11.4	11.4				14.9	20.4
3	88.9	WT	2.11	2.11	3.05	3.05		4.78	5.49	5.49	5.49		7.62	7.62	7.62				11.1	15.2
		Kg/m	4.52	4.52	6.46	6.46		9.92	11.3	11.3	11.3		15.3	15.3	15.3				21.4	27.7
3 1/2	102	WT	2.11	2.11	3.05	3.05		4.78	5.74	5.74	5.74		8.08	8.08	8.08					
		Kg/m	5.18	5.18	7.41	7.41		114	13.6	13.6	13.6		18.6	18.6	18.6					
4	114	WT	2.11	2.11	3.05	3.05		4.78	6.02	6.02	6.02		8.56	8.56	8.56		11.1		13.5	17.1
		Kg/m	5.84	5.84	8.37	8.37		12.9	16.1	16.1	16.1		22.3	22.3	22.3		28.3		33.5	41
5	141	WT	2.77	2.77	3.4	3.4		6.55	6.55	6.55	6.55		9.53	9.53	9.53		12.7		15.9	19.1
		Kg/m	9.46	9.46	11.6	11.6		21.8	21.8	21.8	21.8		31	31	31		40.3		49.1	57.4
6	168	WT	2.77	2.77	3.4	3.4		7.11	7.11	7.11	7.11		11	11	11		14.3		18.3	22
		Kg/m	11.3	11.3	13.8	13.8		28.3	28.3	28.3	28.3		42.6	42.6	42.6		54.2		67.6	79.2
8	219	WT	2.77	2.77	3.76	3.76	6.35	7.04	8.18	8.18	8.18	10.3	12.7	12.7	12.7	15.1	18.3	20.6	23	22.2
		Kg/m	14.8	14.8	20	20	33.3	36.8	42.6	42.6	42.6	53.1	64.6	64.6	64.6	75.9	90.4	101	111	108
10	273	WT	3.4	3.4	4.19	4.19	6.35	7.8	9.27	9.27	9.27	12.7	12.7	12.7	15.1	18.3	21.4	25.4	28.6	25.4
		Kg/m	22.6	22.6	27.8	27.8	41.8	51	60.3	60.3	60.3	81.5	81.5	81.5	96	115	133	155	172	155
12	324	WT	3.96	3.96	4.57	4.57	6.35	8.38	9.53	9.53	10.3	14.3	12.7	12.7	17.5	21.4	25.4	28.6	33.3	25.4
		Kg/m	31.2	31.2	36	36	49.7	65.2	73.9	73.9	79.7	109	97.5	97.5	132	160	187	208	239	187
14	356	WT	3.96	3.96	4.78	6.35	7.92	9.53	9.53		11.1	15.1	12.7		19.1	23.8	27.8	31.8	35.7	
		Kg/m	34.3	34.3	41.4	54.7	67.9	81.3	81.3		94.6	127	107		158	195	225	254	282	
16	406	WT	4.19	4.19	4.78	6.35	7.92	9.53	9.53		12.7	16.7	12.7		21.4	26.2	31	36.5	40.5	
		Kg/m	41.6	41.6	47.3	62.6	77.8	93.3	93.3		123	160	123		204	246	287	333	365	
18	457	WT	4.19	4.19	4.78	6.35	7.92	11.1	9.53		14.3	19.1	12.7		23.8	29.4	34.9	39.7	45.2	
		Kg/m	46.8	46.8	53.3	70.6	87.7	122	105		156	206	139		255	310	364	408	459	
20	508	WT	4.78	4.78	5.54	6.35	9.53	12.7	9.53		15.1	20.6	12.7		26.2	32.5	38.1	44.5	50	
		Kg/m	59.3	59.3	68.6	78.6	117	155	117		183	248	155		311	382	441	508	565	
22	559	WT	4.78	4.78	5.54	6.35	9.53	12.7	9.53		22.2	12.7		28.6	34.9	41.3	47.6	54		
		Kg/m	65.3	65.3	75.6	86.5	129	171	129		294	171			374	451	527	601	672	
24	610	WT	5.54	5.54	6.35	6.35	9.53	14.3	9.53		17.5	24.6	12.7		31	38.9	46	52.4	59.5	
		Kg/m	82.6	82.6	94.5	94.5	141	210	141		255	355	187		442	548	640	720	808	
26	660	WT			7.92	12.7		9.53					12.7							
		Kg/m			127	203		153					203							
28	711	WT			7.92	12.7	15.9	9.53					12.7							
		Kg/m			137	219	272	165					219							
30	762	WT	6.35	6.35	7.92	7.92	12.7	15.9	9.53				12.7							
		Kg/m	118	118	147	147	235	292	177				235							
32	813	WT			7.92	12.7	15.9	9.53			17.5		12.7							
		Kg/m			157	251	312	189			343		251							
34	864	WT			7.92	12.7	15.9	9.53			17.5		12.7							
		Kg/m			167	267	332	201			365		267							
36	914	WT			7.92	12.7	15.9	9.53			19.1		12.7							
		Kg/m			177	282	352	213			420		282							

• **Common Steel Grades Available 可供材质**

TP304 TP304L TP316 TP316L TP321 UNS S31803

• **Manufacturing Standards Available 可供标准**

U.S.A 美国

GERMANY 德国

ASTMA213 ASME SA213

DIN 2448 DIN 2458

ASTMA269 ASME SA269

JAPAN 日本

ASTMA312 ASME SA312

JIS G3459 JIS G3463

ASTMA789 ASME SA789

BS 英国

ASTMA790 ASME SA790

T14975

各国不锈钢牌号近似对照表

• **Approximate Comparative Table**

CHINA	ASTM/ASME		ISO	USA	JAPAN	BRITAIN	GERMANY		FRANCE	SWEDEN	ITALY	INDIA	CNS
	UNS	NO.		美国	日本	英国	德国	法国	瑞典	意大利	印度		
GB1220				AISI	JIS	BS	WERKSTOFF	DIN	NF	SIS	UNI	IS	
1Cr18Mn8Ni5N	S20200	A-3	202	SUS202	284S16								201
1Cr17Ni7	S30100	14	301	SUS301	301S21		1.431	X12CrNi177	Z11CN17-08	142331	X12CrNi1707	10Cr17Ni7	202
													302
Y1Cr18Ni9	S30300	17	303	SUS303	303S21		1.4305	X10CrNiS189	Z8CNF18-09				
Y1Cr18Ni9Se	S30323	17a	303Se	SUS303Se	303S41				Z10CNF18-09	142346	X10CrNiS1809		
0Cr19Ni9	S30400	11	304	SUS304	304S31		1.4301	X5CrNi1810	Z7CN18-09	142333	X5CrNi1810	04Cr18Ni10	304
00Cr19Ni10	S30403	10	304L	SUS304L	304S11		1.4306	X2CrNi1911	Z3CN18-10	142352	X2CrNi1811	02Cr18Ni11	304L
1Cr18Ni12	S30500	13	305	SUS305	305S19		1.4303	X5CrNi1812	Z8CN18-12				305
0Cr23Ni13	S30908		309S	SUS309S	309S16								309S
0Cr25Ni20	S31008	H15	310S	SUS310S	310S16		1.4845		Z8CN25-10	142361	X6CrNi2520		310S
0Cr17Ni12Mo2	S31600	20	316	SUS316	316S31		1.4401	X5CrNiMo17122	Z7CND17-11-02	142343	X8CrNiMo1713	04Cr17Ni12Mo2	316
00Cr17Ni14Mo2	S31603	19	316L	SUS316L	316S11		1.4404	X2CrNiMo17132	Z3CND17-12-02	142348	X2CrNiMo1712	02Cr17Ni12Mo2	316L
0Cr19Ni10Ti	S32100	15	321	SUS321	321S31		1.4541	X6CrNiTi1810	Z6CNT18-10	142337	X8CrNiTi1811	04Cr18Ni10Ti20	321
0Cr18Ni11Nb	S34700	16	347	SUS347	347S31		1.455	X6CrNiNb1810	Z6CNNb18-10	142338	X8CrNiNb1811		347
1Cr12405	S40300		403	SUS403	403S17		1.4024	X5Cr13	Z12C13	142301			403
0Cr13Al	S40500	2	405	SUS405	405S17		1.4002	X6CrAl13	Z8CA12		X6CrAl13		405
1Cr13	S41000	3	410	SUS410	410S21		1.4006	X10Cr13	Z13C13	142302	X12Cr13		410
Y1Cr13420	S41600	7	416	SUS416	416S21		1.4005	X12CrS13	Z11CF13		X12CrS13		
1Cr17	S43000	8	430	SUS430	430S17		1.4016	X6Cr17	Z8C17	142320	X8Cr17	05Cr17	430
1Cr17Ni2	S43100	9b	431	SUS431	431S29		1.4057	X20CrNi172	Z15CN16-02	142321	X16CrNi16		

常用不锈钢牌号的主要用途 Application of main stainless steels

BRAND牌号	TYPE类型	APPLICATION用途
1Cr18Ni9Ti TP 321	奥氏体型 Austenitic	使用最广泛，适用于食品、化工、医药、原子能工业 Widely used in food, chemical, pharmaceutical and nuclear power industries.
0Cr25Ni20 TP 310S	奥氏体型 Austenitic	炉用材料，汽车排气净化装置用材料 Used as materials for furnace and exhaust gas cleaning systems of automobiles.
1Cr18Ni9 TP 302	奥氏体型 Austenitic	经冷加工有高的强度，建筑用装饰部件 High strength after cold forming, used as decorative materials of buildings.
0Cr18Ni9 TP 304	奥氏体型 Austenitic	作为不锈钢耐热钢使用最广泛，食品用设备，一般化工设备，原子能工业用 As a heat resisting stainless steel, widely used in manufacturing of equipment for food, general chemical and nuclear power industries.
00Cr19Ni10 TP 304L	奥氏体型 Austenitic	用于抗晶间腐蚀性要求高的化学、煤炭、石油产业的野外露天机器、建材、耐热零件及热处理有困难的零件 Used to manufacture outdoor equipment, building materials, heat-resistant parts and parts that are difficult to make heat treatment for chemical, coal, petroleum industries that have high requirements for their intergranular corrosion resistant proper lies.
0Cr17Ni12Mo2 TP 316	奥氏体型 Austenitic	适用于海水和其它介质中，主要作耐点蚀材料，照相、食品工业、沿海地区设施、绳索、CD杆、螺栓、螺母 Suitable for seawater and other medium applications, mainly used as pit corrosion resistant material to produce equipment for photographic and food industries, and the inst-allations, rope, CD rod, bolts and nuts along the sea coast.
00Cr17Ni14Mo2 TP 316L	奥氏体型 Austenitic	为0Cr17Ni12Mo2的超低碳钢，用于对抗晶间腐蚀性有特别要求的产品 Ultra-low carbon type of 0Cr17Ni12Mo2 steel, used to manufacture products which have special requirements for intergranular corrosion resistant properties.
0Cr18Ni10Ti TP 321	奥氏体型 Austenitic	添加Ti提高耐晶间腐蚀，不推荐作装饰部件 Its intergranular corrosion resistant properties are enhanced by the addition of Ti. It is not recommended to use as decorative materials.
1Cr17Ni7 TP 301	奥氏体型 Austenitic	适用于高强度构件，火车客车车厢用材料 Suitable to produce high strength structural parts and use as the materials for railroad car.
0Cr13Al TP 405	铁素体型 Ferritic	从高温下冷却不产生显著硬化，汽轮机材料，淬火用部件，复合钢材 No obvious hardening when cooling from high temperature, Suitable to use as the materials for gas turbine, hardened parts and composite steel products.
1Cr17 TP 430	铁素体型 Ferritic	耐腐蚀性良好的通用钢种，建筑内装饰用，重油燃烧器部件，用于家庭用具，家用电器部件 High quality general purpose steel. Suitable to use as materials for inner decoration of the buildings, produce parts for heavy oil bumers and home appliance.
0Cr13 TP 410S	铁素体型 Ferritic	作较高韧性及受冲击负荷的零件，如汽轮机片，结构架，螺栓，螺帽等 Suitable to produce parts needed higher toughness or enduring impact loads, such as blades of the gas turbine, structural frames, bolts and nuts.
1Cr13 TP 410	马氏体型 Martensitic	具有良好的耐蚀性，机械加工性，用做一般用途、刀刃机械零件、石油精炼装置、螺栓、螺母、泵杆、餐具等 Excellent corrosion resistant, mechanical properties. Suitable to produce general purpose parts, cutting tools, mechanical parts, petroleum refining equipment, bolts and nuts, pump rods, and kitchenware.
00Cr22Ni5Mo3N S31803	双相钢 Duplex	良好的耐氯化物应力腐蚀性能，用于炼油工业，陆上和海洋油气工业等 Excellent chloride and stress corrosion resistant properties, suitable to apply in oil refining, petroleum and gas industry on the ground and sea.

可供不锈钢无缝管尺寸及壁厚

* Available Size And Wall Thickness

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尺寸公差表 Pipes/Tubes Size Tolerances

标准 SPECIFICATION	尺寸 SIZE		外径 OD (mm)		壁厚 WT (mm)		长度 LENGTH (mm)	
	尺寸 SIZE	允许公差 PERMISSIBLE VARIATION	尺寸 SIZE	允许公差 PERMISSIBLE VARIATION	尺寸 SIZE	允许公差 PERMISSIBLE VARIATION	尺寸 SIZE	允许公差 PERMISSIBLE VARIATION
ASTM A312	[10.29,48.26]	+0.40/-0.80						
	(48.26,114.30)	+0.80/-0.80				±12.5%		+6/-0
	(114.30,219.08)	+1.6/-0.80						
	(219.08,457.20)	+2.40/-0.80						
ASTM A213	D<25.4	+0.10/-0.10						
	[25.4,38.1]	+0.15/-0.15	D≤38.1		±20%/-0		D>50.8	+3/-0
	(38.1,50.8)	+0.20/-0.20						
	[50.8,63.5]	+0.25/-0.25						
	[63.5,76.2]	+0.30/-0.30	D>38.1		±22%/-0		D≥50.8	+5/-0
	[76.2,101.6]	+0.38/-0.38						
	(101.6,190.5)	+0.38/-0.64						
ASTM A269	(190.5,228.6)	+0.38/-1.14						
	D<12.7					±15%		+3.2/-0
	[12.7,38.1]	+0.13/-0.13						
	(38.1,88.9)	+0.25/-0.25				±10%		+4.8/-0
JIS G3459	[88.9,139.7]	+0.38/-0.38						
	[139.7,203.2]	+0.76/-0.76						
	D<30	+0.30/-0.30	S<2		±20%			
	D≥30	±1%	S≥2		±10%			
JIS G3463	D<40						D≤50;L≤7	+7/-0
	[40,50]	+0.25/-0.25	D<40;S<2		+0.40/-0			
	[50,60]						D<50;L>7	
	[60,80]	+0.30/-0.30						
	[80,100]	+0.40/-0.40	D<40;S≥2		+20%/-0		D>50;L≤7	+10/-0
	[100,120]	+0.40/-0.60						
	[120,160]	+0.40/-0.80						
	[160,200]	+0.40/-0.60	D≥40		+22%/-0		D>50;L>7	THE SAME AS D<50;L≥7M
GB/T 14975-02	D≥200	+0.40/-1.60						
	[10,30]	+0.30/-0.30	S≤3		±14%		[1.0,3.0]	+15/-0
	(30,50)	+0.40/-0.40	S>3		+12%/-10%			
GB/T 14976-02	D>50	±0.9%						
	[6,10]	+0.20/-0.20	[0.5,1.0]		±0.15			
	(10,30)	+0.30/-0.30	(1.0,3]		±14%			+15/-0
	(30,50)	+0.40/-0.40	S>3		12%/-10%			
GB 13296-91	D>50	±0.9%						
	[8,30]	+0.20/-0.20	[1.0,3.0]		+12%/-10%			
	(30,50)	+0.30/-0.30	S>3		±10%			+15/-0
DIN17456 DIN17458	D>50	±0.8%						
	D2	±1.0% ±0.5min	T3		±10% 0.2min		D≤40;L 1m	+1/-0
	D3	±0.75% ±0.3min					D≤40;L;(1-2)m	+2/-0
	D4	±0.5% ±0.1min	T4		±7.5% 0.15min		D≤40;L;(2-3)m	+3/-0
ASTM A511 TABLE 3	D≤40;L;(3-4)m						D≤40;L;(3-4)m	+4/-0
	D≤40;L;(4-8)m						D≤40;L;(4-8)m	+5/-0
	40<D<168							
	L≤6m							+5/-0
	L>6m							+10/-0
	D<12.7					±15%		+3.2/-0
	[12.7,38.1]	+0.13/-0.13						
(38.1,88.9)	+0.25/-0.25							
[88.9,139.7]	+0.38/-0.38				±10%		+4.8/-0	
[139.7,203.2]	+0.76/-0.76							
[203.2,219.8]	+1.14/-1.14							
[219.8,323.85]	+1.57/-1.57							
ASTM A511 TABLE 4	D≤76.2	+0.56/-0.58	S≤2.77		±16.5%			
			2.77<S≤4.37		±15%			
			4.37<S≤5.16		±14%			
			S>5.16		±12.5%			
	(76.2,139.7)	+0.79/-0.79	S≤2.77		±16.5%			
			2.77<S≤4.37		±15%			
			4.37<S≤5.16		±14%			
			S>5.16		±12.5%			
	(139.7,203.2)	+1.19/-1.19	4.37<S≤5.16		±14%			
			S>5.16		±12.5%			+4.76/-0

线规换算表

Wire Gauge Conversion Table

S.W.G	British Imperial Standard Wire Gage 英国线规标准								
B.W.G	Birmingham Wire Gage. 伯明翰线规								
B. & S.	Brown and Sharpe Wire Gage. 布朗和夏普线规								
A.S.W.G.	American Standard Wire Gage : W. & M. 美国线规标准								
J.de P.	Paris Wire Gage. 巴黎线规								
W.G.	Westphalia Wire Gage. 威斯特伐利亚线规								
B.G.	Standard Birmingham Sheet and Hoop.								
U.S.S.	U. S. Standard for sheet and Plate Iron and Steel								
Gage No.	S.W.G mm	B.W.G mm	B. & S. mm	A.S.. W.G. mm	A.S.. W.G. inch	J.de P. mm	W.G. mm	B.G. mm	U.S.S. mm
0	12.699	12.7		12.45	0.49				12.7
0	11.785	11.532	14.73	11.72	0.4615	(PI)100	0.6		11.906
0	10.972	10.495	13.12	10.93	0.4305	(P)500	0.68	12.7	11.113
0	10.159	9.652	11.68	10	0.3938	600	0.76	11.303	10.319
0	9.448	8.636	10.4	9.208	0.3625	700	0.8	10.069	9.525
0	8.839	7.62	9.266	8.407	0.331	800	0.88	8.971	8.732
0	8.229	7.213	8.255	7.785	0.3065	900	1	7.993	7.938
1	7.62	6.579	7.348	7.188	0.283	1	1.12	7.122	7.144
2	7.01	6.045	6.543	6.688	0.2625	1.1	1.2	6.35	6.747
3	6.401	5.588	5.827	6.19	0.2437	1.2	1.3	5.652	6.35
4	5.873	5.156	5.189	5.732	0.2253	1.3	1.4	5.032	5.953
5	5.385	4.572	4.62	5.258	0.207	1.4	1.56	4.481	5.556
6	4.877	4.191	4.115	4.877	0.192	1.5	1.66	3.988	5.159
7	4.47	4.759	3.665	4.496	0.177	1.6	1.84	3.551	4.763
8	4.064	3.404	3.264	4.115	0.162	1.8	2.04	3.175	4.366
9	3.658	3.048	2.906	3.767	0.1483	2	2.2	2.827	3.969
10	3.251	2.769	2.588	3.429	0.135	2.2	2.4	2.517	3.572
11	2.946	2.413	2.304	3.061	0.1205	2.4	2.6	2.24	2.175
12	2.632	2.108	2.052	2.68	0.1055	2.7	3.92	1.994	2.778
13	2.337	1.829	1.826	2.324	0.0915	3	3.4	1.775	2.381
14	2.032	1.651	1.628	2.032	0.08	3.4	2.84	1.558	1.984
15	1.829	1.473	1.45	1.829	0.072	3.9	4.2	1.412	1.786
16	1.626	1.245	1.29	1.583	0.0625	4.4	4.65	1.257	1.588
17	1.422	1.067	1.151	1.372	0.054	4.9	5.45	1.118	1.429
18	1.219	0.8884	1.024	1.207	0.0475	5.4	5.96	0.9956	1.27
19	1.016	0.8128	0.9116	1.041	0.041	5.9	7	0.8865	1.111
20	0.9144	0.7109	0.8128	0.8839	0.0348	6.4	7.6	0.7938	0.9525
21	0.8128	0.6347	0.7239	0.8052	0.0318	7	8.8	0.7077	0.8731
22	0.7112	0.5585	0.6426	0.7264	0.0286	7.6	9.4	0.6289	0.7938
23	0.6096	0.5078	0.574	0.6553	0.0258	8.2	10	0.5598	0.7114
24	0.5588	0.457	0.5105	0.5862	0.023	8.8		0.4981	0.635
25	0.508	0.4062	0.4547	0.5182	0.0204	9.4		0.4432	0.5556
26	0.4572	0.3555	0.4039	0.4597	0.0181	10		0.3969	0.4763
27	0.4166	0.33	0.3607	0.4394	0.0173			0.3531	0.4366
28	0.3759	0.3047	0.32	0.4115	0.0162			0.3124	0.3969
29	0.3454	0.2539	0.2875	0.381	0.015			0.2794	0.3572
30	0.315	0.2286	0.254	0.3556	0.014			0.2489	0.3175
31	0.2946	0.2031	0.2268	0.3353	0.0132			0.221	0.2778
32	0.2743	0.1777	0.2019	0.3251	0.0122			0.1956	0.258
33	0.254	0.1269	0.1798	0.2997	0.0118			0.1753	0.2381
34	0.2337	0.1206	0.16	0.2642	0.0104			0.1579	0.2183
35	0.2134		0.1425	0.2413	0.1195			0.1372	0.1984
36	0.193		0.127	0.2286	0.009			0.1219	0.1786
37	0.1727		0.1112	0.2159	0.0085				0.1687
38	0.1524		0.1006	0.2032	0.008				0.1588
39	0.1321		0.0897	0.1905	0.0075				
40	0.1229		0.0897	0.1778	0.007				

常用标准检验试验项目 The Test Requirements of Standards

类别 ITEM	化学成分	拉伸试验	洛氏硬度	压扁	扩口	水压 ①	超声波	涡流	晶间腐蚀试验 ④	晶粒度	表面质量	尺寸
规范 SPECIFICATION	CHEMICAL COMPOSITION	TENSION TEST	ROCKWELL HARDNESS	FLATTENING	FLARING	HYDROSTATIC	ULTRASONIC	EDDY CURRENT	INTERGRANULAR CORROSION	GRAIN SIZE	SURFACE QUALITY	SIZE
ASTMA312	●	●	○	●	○	●	○	○	○	○	●	●
ASTMA213	●	●	●	●	●	●	○	○	○	②	●	●
ASTMA269	●	○	●	○	●	●	○	○	○	○	●	●
ASTMA511	●	○	○	○	○	○	○	○	○	○	●	●
ASTMA789	●											
ASTMA790	●											
JISG3459	●	●	○	●	○	●	○	○	○	②	●	●
JISG3463	●	●	○	●	●	●	○	○	○	②	●	●
DIN17456	●	●	○	○	○	●	○	○	○	○	●	●
DIN17458	●	●	○	●	●	●	● ③	● ③	○	○	●	●
GB/T14975-02	●	●	○	●	○	○	○	○	○	○	●	●
GB/T14976-02	●	●	○	○	○	●	○	○	●	○	●	●
GB13296-91	●	●	●	●	●	●	●	●	●	○	●	●

备注:

- “●” 表示标准必需的。
- “○” 表示双方协商的或者对方要求的。
- ①表示水压实验可被超声波或者涡流探伤实验代替。
- ②对于304H, 316H, 347H必须进行颗粒度试验。
- ③ 外径小于101.6mm的管子仅依订货协议。
- ④ 船用管需要全进行晶间腐蚀试验。

Remarks:

- “●” implies necessity by standard.
- “○” means mutually negotiable or complimentary requests.
- ①means Hydro test can be taken place by Ultrasonic or Eddy current test.
- ② For 304H, 316H, 347H, grain size test shall be carried.
- ③The tube with o.d.under 101.6mm, acc. To agreement.
- ④ IGC test is necessity for ship building.

不锈钢棒标准重量

Standard Weight Of Stainless Steel Bar

钢号 Steel Grade	比重 Specific Gravity	计算公式 Calculating Formula
TP 304	7.93	$W=0.006228 \times D^2$
TP 316	7.98	$W=0.006267 \times D^2$

不锈钢管标准重量

Standard Weight Of Stainless Steel Pipe/Tube

钢号 Steel Grade	比重 Specific Gravity	计算公式 Calculating Formula
TP 304	7.93	$W=0.02491t(w-t)$
TP 316	7.98	$W=0.02507t(w-t)$

美国ASTM标准物理机械性能 ASTM Mechanical Properties

Grade	Mechanical Properties, min			
	Elongation, % (G.L.: 2in or 50 mm)		Hardness Test \leq	
	Tensile Strength	Yield Point	Brinell	Rockwell
	\geq Ksi (Mpa)	\geq Ksi (Mpa)		
TP 304	75(515)	30(205)	192	B 90
TP 304 H	75(515)	30(205)	192	B 90
TP 304 L	70(485)	25(170)	192	B 90
TP 304 N	80(550)	35(240)	192	B 90
TP 304 LN	75(515)	30(205)	192	B 90
TP 309	75(515)	30(205)	192	B 90
TP 310	75(515)	30(205)	192	B 90
TP 316	75(515)	30(205)	192	B 90
TP 316H	75(515)	30(205)	192	B 90
TP 316 L	70(485)	25(170)	192	B 90
TP 316 N	80(550)	35(240)	192	B 90
TP 316 LN	75(515)	30(205)	192	B 90
TP 317	75(515)	30(205)	192	B 90
TP 321	75(515)	30(205)	192	B 90
TP 321 H	75(515)	30(205)	192	B 90
TP 347	75(515)	30(205)	192	B 90
TP 347 H	75(515)	30(205)	192	B 90
TP 329	90(621)	70(483)	171	C 28
TP 316 Ti	75(515)	30(205)	192	B 90
S31803	90(620)	65(450)	290	30.5

美国ASTM标准化学成分 ASTM Chemical Composition (% ,max)

Grade	Chemical Composition								
	C	Si (Max)	Mn (Max)	P (max)	S (max)	Ni	Cr	Mo	Others
TP 304	<=0.08	0.75	2	0.04	0.03	8.00~11.00	18.00~20.00		
TP 304 H	0.04~0.10	0.75	2	0.04	0.03	8.00~11.00	18.00~20.00		
TP 304 L	<=0.035	0.75	2	0.04	0.03	8.00~13.00	18.00~20.00		
TP 304 N	<=0.08	0.75	2	0.04	0.03	8.00~11.00	18.00~20.00		N: 0.10~0.16
TP 304 LN	<=0.035	0.75	2	0.04	0.03	8.00~11.00	18.00~20.00		N: 0.10~0.16
TP 309	<=0.15	0.75	2	0.04	0.03	12.00~15.00	22.00~24.00		
TP 310	<=0.15	0.75	2	0.04	0.03	19.00~22.00	24.00~26.00		
TP 316	<=0.08	0.75	2	0.04	0.03	11.00~14.00	16.00~18.00	2.00~3.00	
TP 316 H	0.04~0.10	0.75	2	0.04	0.03	11.00~14.00	16.00~18.00	2.00~3.00	
TP 316L	<=0.035	0.75	2	0.04	0.03	10.00~15.00	16.00~18.00	2.00~3.00	
TP 316N	<=0.08	0.75	2	0.04	0.03	11.00~14.00	16.00~18.00	2.00~3.00	N: 0.10~0.16
TP 316 LN	<=0.035	0.75	2	0.04	0.03	10.00~15.00	16.00~18.00	2.00~3.00	N: 0.10~0.16
TP 317	<=0.08	0.75	2	0.04	0.03	11.00~14.00	18.00~20.00	3.00~4.00	
TP 321	<=0.08	0.75	2	0.04	0.03	9.00~13.00	17.00~20.00		Ti: 5xC%~0.70B
TP 321 H	0.04~0.10	0.75	2	0.04	0.03	9.00~13.00	17.00~20.00		Ti: 4xC%~0.60
TP 347	<=0.08	0.75	2	0.04	0.03	9.00~13.00	17.00~20.00		Nb + Ta: 10 X C%~1.00
TP 347 H	0.04~0.10	0.75	2	0.04	0.03	9.00~13.00	17.00~20.00		Nb + Ta: 8 X C%~1.0
TP 329	<=0.089	0.75	1	0.04	0.03	2.50~5.00	23.00~28.00	1.00<=2.0	
TP 316 Ti	<=0.08	0.75	2	0.04	0.03	11.00~14.00	16.00~18.00	2.00~3.00	Ti: 5xC%~0.75
S31803	0.030	1.00	2	0.03	0.02	4.5~6.5	21.00~23.00	2.50~3.50	N:0.08~0.30

日本JIS G3459标准机械性能

JIS G3459 Mechanical Properties

Grade	Tention Test						
	Tensile Strength kgf/mm ² N/mm ²		Yield Point kgf/mm ² N/mm ²		Elongation %		
					No.11 NO.12 Vertical	No.5 Horizontal	No.4 Vertical
SUS 304 TP	>53	(>520)	>21	(>206)	>35	>25	>30
SUS 304H TP	>53	(>520)	>21	(>206)	>35	>25	>30
SUS 304L TP	>49	(>481)	>18	(>177)	>35	>25	>30
SUS 309S TP	>53	(>520)	>21	(>206)	>35	>25	>30
SUS 310S TP	>53	(>520)	>21	(>206)	>35	>25	>30
SUS 316 TP	>53	(>520)	>21	(>206)	>35	>25	>30
SUS 316H TP	>53	(>520)	>21	(>206)	>35	>25	>30
SUS 316L TP	>49	(>481)	>18	(>177)	>35	>25	>30
SUS 321 TP	>53	(>520)	>21	(>206)	>35	>25	>30
SUS 321H TP	>53	(>520)	>21	(>206)	>35	>25	>30
SUS 347 TP	>53	(>520)	>21	(>206)	>35	>25	>30
SUS 347H TP	>53	(>520)	>21	(>206)	>35	>25	>30
SUS 309J1 TP	>60	(>588)	>40	(>392)	>18	>13	

日本JIS G3463锅炉、热交换器用不锈钢钢管机械性能

JIS G3463 Mechanical Properties

Grade	Tention Test				
	Tensile Strength kgf/mm ² N/mm ²		Yield Point kgf/mm ² N/mm ²		Elongation % No.11 No.12
SUS 304 TB	>53	>(520)	>21	>(206)	>35
SUS 304H TB	>53	>(520)	>21	>(206)	>35
SUS 304L TB	>49	>(481)	>18	>(177)	>35
SUS 309S TB	>53	>(520)	>21	>(206)	>35
SUS 310S TB	>53	>(520)	>21	>(206)	>35
SUS 316 TB	>53	>(520)	>21	>(206)	>35
SUS 316H TB	>53	>(520)	>21	>(206)	>35
SUS 316L TB	>49	>(481)	>18	>(177)	>35
SUS 321 TB	>53	>(520)	>21	>(206)	>35
SUS 321H TB	>53	>(520)	>21	>(206)	>35
SUS 347 TB	>53	>(520)	>21	>(206)	>35
SUS 347H TB	>53	>(520)	>21	>(206)	>35
SUS 329J1 TB	>60	>(588)	>40	>(392)	>18
SUS 430 TB	>42	>(412)	>25	>(245)	>20
SUS 410TB	>42	>(412)	>21	>(206)	>20

无缝管生产工艺流程

PRODUCTION PROCES



NANYANG

Nanyang Steel



南洋钢管

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