



## Seamless Austenitic Stainless Steel Tubes for High-Temperature Service Grade TP 304H, TP 347H, TP 321H

- ▶ Main use of the high alloy material is for boiler tubes in power stations and refineries
- ▶ Special properties:
  - high creep rupture strength above 500°C
  - excellent resistance to high-temperature corrosion
  - excellent processing characteristics

### Chemical composition (heat analysis in %)

	C	Si max.	Mn max.	P max.	S max.	Cr	Ni	others
<b>TP 304H/ 1.4948</b>	0,04-0,08	1	2	0,04	0,015	18-19	8-11	N≤0,11
<b>TP 347H/ 1.4550</b>	0,04-0,08	1	2	0,04	0,015	17-19	9-13	Nb10xC up to 1
<b>TP 321H/ 1.4541</b>	0,04-0,08	1	2	0,04	0,015	17-19	9-13	Ti 5xC up to 0,7

### Mechanical properties at room temperature

	tensile strength N/mm <sup>2</sup>	yield strength 0,2 % N/mm <sup>2</sup> 1 % N/mm <sup>2</sup>		elongation at fract. longit. (L <sub>0</sub> =5d <sub>0</sub> ) %	notch impact energy (ISO-V) longitud. J
<b>TP 304H/ 1.4948</b>	515-700	min. 205	min. 230	min. 40	min. 100
<b>TP 347H/ 1.4550</b>	515-740	min. 205	min. 240	min. 35	min. 100
<b>TP 321H/ 1.4541</b>	515-730	min. 205	min. 215	min. 35	min. 100

## Seamless austenitic stainless steel tubes and pipes for High-Temperature Service (available from stock)

OD mm	WT mm	kg/m	NPS	TP304/ TP304H	TP321/ TP321H	TP347/ TP347H
13,72 x 2,24	0,64		1/4" SCH 40S		x	
21,34 x 2,11	1,02		1/2" SCH 10S		x	
21,34 x 2,77	1,29		1/2" SCH 40S	x	x	x
21,34 x 3,73	1,64		1/2" SCH 80S	x	x	x
21,34 x 4,78	1,98		1/2" SCH 160		x	
21,34 x 7,47	2,59		1/2" SCH XXS		x	
26,67 x 2,11	1,30		3/4" SCH 10S		x	
26,67 x 2,87	1,71		3/4" SCH 40S	x	x	x
26,67 x 3,91	2,23		3/4" SCH 80S	x	x	x
26,67 x 5,54	2,93		3/4" SCH 160		x	
26,67 x 7,82	3,69		3/4" SCH XXS		x	
33,40 x 2,77	2,12		1" SCH 10S		x	
33,40 x 3,38	2,54		1" SCH 40S	x	x	x
33,40 x 4,55	3,29		1" SCH 80S	x	x	x
33,40 x 6,35	4,30		1" SCH 160		x	
33,40 x 9,09	5,53		1" SCH XXS		x	
42,16 x 2,77	2,73		1 1/4" SCH 10S		x	
42,16 x 3,56	3,44		1 1/4" SCH 40S	x	x	x
42,16 x 4,85	4,53		1 1/4" SCH 80S		x	
42,16 x 6,35	5,69		1 1/4" SCH 160		x	
42,16 x 9,70	7,88		1 1/4" SCH XXS		x	
48,26 x 2,77	3,16		1 1/2" SCH 10S		x	
48,26 x 3,68	4,11		1 1/2" SCH 40S	x	x	x
48,26 x 5,08	5,49		1 1/2" SCH 80S	x	x	x
48,26 x 7,14	7,35		1 1/2" SCH 160		x	
48,26 x 10,16	9,69		1 1/2" SCH XXS		x	
60,33 x 2,77	3,99		2" SCH 10S		x	
60,33 x 3,91	5,52		2" SCH 40S	x	x	x
60,33 x 5,54	7,60		2" SCH 80S	x	x	x
60,33 x 8,74	11,29		2" SCH 160		x	
60,33 x 11,07	13,65		2" SCH XXS		x	
73,03 x 3,05	5,34		2 1/2" SCH 10S		x	
73,03 x 5,16	8,77		2 1/2" SCH 40S	x	x	x
73,03 x 7,01	11,59		2 1/2" SCH 80S		x	
73,03 x 9,53	15,15		2 1/2" SCH 160		x	
73,03 x 14,02	20,72		2 1/2" SCH XXS		x	
88,90 x 3,05	6,56		3" SCH 10S		x	
88,90 x 5,49	11,47		3" SCH 40S	x	x	x
88,90 x 7,62	15,51		3" SCH 80S	x	x	x
88,90 x 11,13	21,67		3" SCH 160		x	
88,90 x 15,24	28,11		3" SCH XXS		x	

OD mm	WT mm	kg/m	NPS	TP304/ TP304H	TP321/ TP321H	TP347/ TP347H
101,60x 3,05	7,53		3 1/2" SCH 10S		x	
101,60x 5,74	13,78		3 1/2" SCH 40S		x	
101,60x 8,08	18,92		3 1/2" SCH 80S		x	
114,30x 3,05	8,50		4" SCH 10S		x	
114,30x 6,02	16,32		4" SCH 40S	x	x	x
114,30x 8,56	22,66		4" SCH 80S	x	x	x
114,30x11,13	28,75		4" SCH 120		x	
114,30x13,49	34,05		4" SCH 160		x	
114,30x17,12	41,66		4" SCH XXS		x	
141,30x 3,40	11,74		5" SCH 10S		x	
141,30x 6,55	22,10		5" SCH 40S	x	x	x
141,30x 9,53	31,44		5" SCH 80S		x	
141,30x12,70	40,90		5" SCH 120		x	
141,30x15,88	49,87		5" SCH 160		x	
168,30x 3,40	14,04		6" SCH 10S		x	
168,30x 7,11	28,70		6" SCH 40S	x	x	x
168,30x10,97	43,22		6" SCH 80S	x	x	x
168,30x14,27	55,04		6" SCH 120		x	
168,30x18,26	68,60		6" SCH 160		x	
168,30x21,95	80,44		6" SCH XXS		x	
219,10x 3,76	20,27		8" SCH 10S		x	
219,10x 6,35	33,83		8" SCH 20		x	
219,10x 8,18	43,20		8" SCH 40S	x	x	x
219,10x10,31	53,90		8" SCH 60		x	
219,10x12,70	65,64		8" SCH 80S	x	x	x
219,10x15,09	77,09		8" SCH 100		x	
219,10x18,26	91,83		8" SCH 120		x	
219,10x23,01	112,98		8" SCH 160		x	
273,00x 4,19	28,20		10" SCH 10S		x	
273,00x 6,35	42,40		10" SCH 20		x	
273,00x 9,27	61,22		10" SCH 40S		x	
273,00x12,70	82,78		10" SCH 80S		x	
273,00x21,44	135,05		10" SCH 120		x	
273,00x28,58	174,92		10" SCH 160		x	
323,90x 6,35	50,59		12" SCH 20		x	
323,90x 9,52	74,94		12" SCH 40S		x	
323,90x12,70	98,96		12" SCH 80S		x	
323,90x17,48	134,12		12" SCH 80		x	
323,90x21,44	162,38		12" SCH 100		x	
323,90x33,32	242,44		12" SCH 160		x	
355,60x 9,52	82,50		14" SCH 40S		x	
355,60x12,70	109,04		14" SCH 80S		x	
355,60x19,05	160,54		14" SCH 80		x	
355,60x23,83	197,97		14" SCH 100		x	
355,60x35,71	286,04		14" SCH 160		x	
406,40x12,70	125,20		16" SCH 80S		x	
406,40x21,44	206,67		16" SCH 80		x	

Stock standard: ASTM/ASME A/SA 312/376,  
EN10216-5, TC1, IC-Test according to  
ASTM A262 Practice E, NACE MR0175;  
mill inspection certificate EN DIN 10204/3.1

Grades: TP 304/304H (1.4301, 1.4948); TP 321/321H (1.4541, 1.4878); TP 347/347H (1.4550, 1.4912)

Please ask us also for TP316 with C  $\geq$  0,04 %.

Supplementary requirement (upon request): TP 347/347H with stabilizing heat treatment at 900°C for 30 minutes.

**Stahlkontor Hahn - Your Master Distributor**

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