

# GENERAL INFORMATION

## Steel grades - chemical and mechanical properties

CHEMICAL COMPOSITION											
( % by mass, maximum values unless indicated otherwise)											
<b>Austenitic</b>											
Fulfills the standards A554 and ASTM A240/240M											
MT	C	Mn	P	S	Si	Cr	Ni	Mo	N	Others	PRE
304	0.07	2.00	0.045	0.030	0.75	18.0-19.5	8.0-10.5		0.10		18
304L	0.03	2.00	0.045	0.030	0.75	18.0-19.5	8.0-12.0		0.10		18
316L	0.03	2.00	0.045	0.030	0.75	16.0-18.0	10.0-14.0	2.00-3.00	0.10		24
316Ti <sup>1)</sup>	0.08	2.00	0.045	0.030	0.75	16.0-18.0	10.0-14.0	2.00-3.00	0.10	Min Ti 5x(C+N), max 0.70	24
<b>Ferritic</b>											
Fulfills the standard ASTM A240/240M											
UNS	C	Mn	P	S	Si	Cr	Ni	Mo	N	Others	PRE
S40977	0.03	1.50	0.040	0.015	1.00	10.5-12.5	0.3-1.0		0.03		12
<b>Lean Duplex and Duplex</b>											
Fulfills the standards A554 and ASTM A240/240M											
UNS	C	Mn	P	S	Si	Cr	Ni	Mo	N	Others	PRE
S32101	0.04	4.0-6.0	0.04	0.03	1.00	21.0-22.0	1.35-1.70	0.10-0.80	0.20-0.25	Cu 0.10-0.80	26
S32202	0.03	2.0	0.04	0.01	1.00	21.5-24.0	1.0-2.8	0.45	0.18-0.26		26
S32304	0.03	2,50	0.04	0.03	1.00	21.5-24.5	3.0-5.5	0.05-0.6	0.05-0.20	Cu 0.05-0.60	28
S32205	0.03	2,00	0.04	0.02	1.00	22.0-23.0	4.5-6.5	3.0-3.5	0.14-0.20		35

<sup>1)</sup> Not included in standard ASTM A554

MECHANICAL PROPERTIES				
(Measured from coil, minimum values) Fulfills the standard ASTM A240/240M				
<b>Austenitic</b>				
MT	0.2 % - proof strength Rp0.2 ksi (MPa)	Tensile strength Rm ksi (MPa)	Elongation A50 %	
304	30 (205)	75 (515)	40	
304L	25 (170)	70 (485)	40	
316L	25 (170)	70 (485)	40	
316Ti	30 (205)	75 (515)	40	
<b>Ferritic</b>				
UNS	0.2 % - proof strength Rp0.2 ksi (MPa)	Tensile strength Rm ksi (MPa)	Elongation A50 %	
S40977	41 (280)	65 (450)	18	
<b>Lean Duplex and Duplex</b>				
UNS		0.2 % - proof strength Rp0.2 ksi (MPa)	Tensile strength Rm ksi (MPa)	Elongation A50 %
S32101	T ≤ 0.187 in. (5 mm) T > 0.187 in. (5 mm)	77 (530) 65 (450)	101 (700) 94 (650)	30 30
S32202		65 (450)	94 (650)	30
S32304		58 (400)	87 (600)	25
S32205		65 (450)	95 (655)	25

We reserve the right to changes. Stalutube takes no responsibility for any error in numerical information that might appear in this brochure.

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# Stainless hollow sections

## Austenitic

(304, 304L, 316L, 316Ti)

DELIVERY CONDITION	
Forming	Cold formed (roll formed)
Welding process	TIG/Plasma, Laser or HF
Weld condition	External weld bead removed
Surface quality	As welded (unpol)

TUBE MARKING	
Ink-jet marking on tube	Stalatube Oy made in Finland, steel grade, dimensions, coil number, production week/year, welding operator
Bundle tag	Dimensions, steel grade, surface condition, bundle size, batch id, coil number, bundle number

SQUARE		Weight [lb/ft]							
H x B [inch]		.060	.080	.120	.180	.250	.312	.375	.500
1	1	.779	1.022	1.483					
1.25	1.25	.985	1.297	1.895					
1.5	1.5	1.188	1.567	2.300					
2	2	1.596	2.112	3.117	4.562	5.931			
2.5	2.5	2.005	2.656	3.934	5.788	7.565			
3	3		3.201	4.751	7.013	9.200			
3.5	3.5			5.568	8.239	10.834			
4	4			6.386	9.465	12.468	16.355	20.107	
5	5			8.020	11.916	15.737	20.713	25.555	
6	6				14.368	19.005	25.071	31.002	36.799
8	8				19.271	25.543	33.787	41.897	49.873
10	10					32.080	42.504	52.793	62.947
12	12					38.617	51.220	63.688	76.022

RECTANGULAR		Weight [lb/ft]							
H x B [inch]		.060	.080	.120	.180	.250	.312	.375	.500
1.5	1	.985	1.297	1.895					
2	1	1.188	1.567	2.300					
2	1.5	1.392	1.839	2.708					
3	1	1.596	2.112	3.117					
3	2		2.656	3.934	5.788	7.565			
4	2		3.201	4.751	7.013	9.200			
4	3			5.568	8.239	10.834			
5	2			5.568	8.239	10.834			
5	3			6.386	9.465	12.468			
6	2				9.465	12.468			
6	3				10.691	14.103			
6	4				11.916	15.737	20.713	25.555	
8	2				11.916	15.737			
8	4				14.368	19.005	25.071	31.002	
8	6				16.819	22.274	29.429	36.450	43.336
10	2				14.368	19.005			
10	4					22.274	29.429	36.450	
10	6					25.543	33.787	41.897	49.873
10	8					28.811	38.145	47.345	56.410
12	4					25.543	33.787	41.897	
12	6					28.811	38.145	47.345	
12	8					32.080	42.504	52.793	62.947
12	10					35.348	46.862	58.240	69.484
14	6					32.080	42.504	52.793	62.947
14	8					35.348	46.862	58.240	69.484
14	10					38.617	51.220	63.688	76.022
16	8					38.617	51.220	63.688	76.022

Also other dimensions may be possible on request.

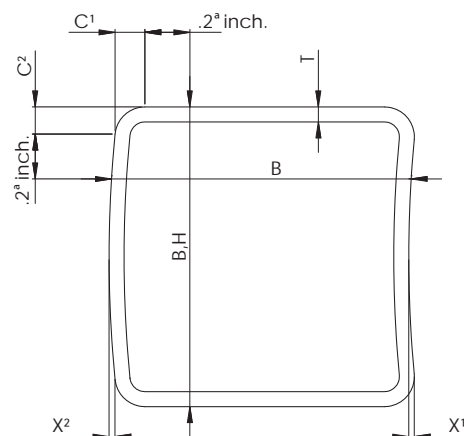
<b>TOLERANCES (according to ASTM A554)</b>	
<b>Outside dimensions h, b in. (mm)</b>	
<b>Largest outside dimensions</b>	<b>Tolerance +/- in. (mm)</b>
to 1 1/4 (31.8) incl.	+/- .015" (0.38 mm)
Over 1 1/4 to 2 1/2 (31.8 to 63.5) incl.	+/- .020" (0.51 mm)
Over 2 1/2 to 5 1/2 (63.5 to 139.7) incl.	+/- .030" (0.76 mm)
Over 5 1/2 to 8 (139.7 to 203.2) incl.	+/- .060" (1.52 mm)
Over 8 (203.2) <sup>1)</sup>	+/- .8 % x side length
<b>Thickness</b>	
	+/- 10 %
<b>Squareness</b>	
	.006 x longest side
<b>Concavity/convexity (X<sup>1</sup>/X<sup>2</sup>)</b>	
	Included in outside dimensions
<b>External corner radius</b>	
<b>Wall thickness in. (mm)</b>	<b>Max external corner radius in. (mm)</b>
Over .020 to .049 (0.51 to 1.24) incl.	3/32 (2.4)
Over .049 to .065 (1.24 to 1.65) incl.	1/8 (3.2)
Over .065 to .083 (1.65 to 2.11) incl.	9/64 (3.6)
Over .083 to .095 (2.11 to 2.42) incl.	3/16 (4.8)
Over .095 to .109 (2.42 to 2.77) incl.	13/64 (5.2)
Over .109 to .134 (2.77 to 3.40) incl.	7/32 (5.6)
Over .134 to .156 (3.40 to 3.96) incl.	1/4 (6.4)
Over .156 to .200 (3.96 to 5.08) incl.	3/8 (9.5)
Over .200 to .250 (5.08 to 6.35) incl.	1/2 (12.7)
Over .250 to .375 (6.35 to 9.53) incl.	3/4 (19.1)
Over .375 to .500 (9.53 to 12.70) incl. <sup>1)</sup>	6/5 (30.5)

<sup>1)</sup> Not included in ASTM A554

<b>Twist</b>	
<b>Largest size, in. (mm)</b>	<b>Twist in 3 feet, max, in. (mm/m)</b>
Under 1/2 (12.7)	.050 (1.4)
1/2 to 1 1/2 (12.7 to 38.1) incl.	.075 (2.1)
Over 1 1/2 to 2 1/2 (38.1 to 63.5) incl.	.095 (2.6)
Over 2 1/2 to 4 (63.5 to 101.6) incl.	.125 (3.5)
Over 4 to 6 (101.6 to 152.4) incl.	.250 (6.9)
Over 6 (152.4)	.375 (10.4)
<b>Standard length</b>	
	20' (6.1 m)
<b>Length tolerance</b>	
	-0"/+ .78" (-0 mm/+20 mm)
<b>Straightness</b>	
	.075"/3 ft (2,1 mm/1 m)

<b>BUNDLE PACKING AND MARKING:</b>	
Plastic bands	
Bundle tags	
Corner protection	
Plastic foil	

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<sup>a</sup> This dimension is maximum when measuring B or H and minimum when measuring T