

METRIC INSTRUMENTATION

Tolerances and delivery to ASTM A269/A213. Bright annealed, hardness RB80 maximum. Lengths 5-7 metre randoms.

○ AUSTRIAN STOCK ● U.K. STOCK

SIZE (mm)	304/L	321	316/L
6 x 0.5			●
6 x 1	●	○	●
6 x 1.5			●
8 x 0.8	●		
8 x 1	●	○	
8 x 1.5	●	○	●
8 x 2			●
10 x 1	●	●	●
10 x 1.5	●	●	●
10 x 2	○	○	●
11 x 2			●
12 x 1	●	○	●
12 x 1.5	●	○	●
12 x 2	○	○	●
14 x 2		○	●
15 x 1	●	○	●
15 x 1.5	●	○	●
15 x 2	○	○	●
16 x 1	○	○	●
16 x 1.5	○	○	●
16 x 2	○	○	●
16 x 3			●

METRIC HYDRAULIC/GENERAL TUBE

Tolerances and delivery to ASTM A269/A213. Bright annealed. Lengths 5-7 metre randoms.

SIZE (mm)	304/L	321	316/L
18 x 1.5	●	○	●
18 x 2	○	○	●
20 x 1.5	○		●
20 x 2	○	○	●
20 x 2.5		○	●
20 x 3		○	●
22 x 1.5	○	○	●
22 x 2	○	○	●
25 x 1.5			●
25 x 2	○	○	●
25 x 2.5	○	○	●
25 x 3		○	●
28 x 1.5		○	●
28 x 2	○	○	●
30 x 1.5			●
30 x 3		○	●
35 x 2	●		●
38 x 3		○	●
38 x 4		○	●
38 x 5		○	●
42 x 2	●		

HEAT EXCHANGER TUBE

Seamless Stainless Steel Tube to ASTM A213. Cold finished, softened and descaled. In 12/13 metre random lengths supplied in average and minimum wall. Cut lengths available on request.

OD WEIGHT	mm	304/L	316/L
3/4" x 16 Bwg	(19.05 x 1.65)	○	○
3/4" x 14 Bwg	(19.05 x 2.11)	○	○
1" x 16 Bwg	(25.40 x 1.65)	○	○
1" x 14 Bwg	(25.40 x 2.11)		○

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Data information on reverse



ASTM SPECIFICATIONS AND TOLERANCES

ASTM A213/A213M (Latest Edition)

Seamless Ferritic and Austenitic alloy steel boiler, superheater and heat exchanger tubes.

TOLERANCES

Outside diameter and wall thickness tolerances to ASTM A450 / A450M (Latest Edition)

Permissible variations in outside diameter		
Outside Diameter (inc Out-of-Roundness)		
Outside Diameter in.	in.	in.
	Over	Under
Cold-Drawn Tubes		
Under 1	0.004	0.004
1 to 1.1/2 inclusive	0.006	0.006
Over 1.1/2 to 2 excl.	0.008	0.008
2 to 2.1/2 excl.	0.010	0.010
2.1/2 to 3 excl.	0.012	0.012
3 to 4 incl.	0.015	0.015
Over 4	0.015	0.025
Hot-Finished Tubes		
4 & under	1/64	1/32
Over 4	1/64	3/64

For cold drawn seamless tubes under 2" OD the maximum OD variation may be ± 0.010 ". This increased variation is necessitated by ovality and is not to be added to the above values.

Permissible variations in wall thickness								
Wall Thickness %								
Outside Dia. in.(mm)	0.095 (2.4) and Under		Over 0.095 to 0.150 (2.4) (2.4 to 3.8) inc.		Over 0.150 to 0.180 (3.8 to 4.6) inc.		Over Under	
	Over	Under	Over	Under	Over	Under		
Seamless, Hot-Finished Tubes								
4 (101.6) & Under	40	0	35	0	33	0	28 0	
Over 4 (101.6)	35	0	33	0	28	0		
Seamless, Cold-Finished Tubes								
	Over						Under	
1.1/2(38.1) & Under	20						0	
Over 1.1/2 (38.1)	22						0	

ASTM A269 (Latest Edition)

Seamless & Welded Austenitic Stainless Steel Tube for general corrosion resisting and low or high temperature service.

TOLERANCES

Size Outside Dia. in.	Permissible Variations in Outside Dia. in. (mm)	Permissible Variations in Wall Thickness percent	Ovality shall be double the permissible variations in outside dia. when wall thickness is less than	Permissible Variations in Cut Lengths in. (mm)	
				Over	Under
Up to 1/2	$\pm 0.005(0.13)$	± 15		1/8(3.2)	0
1/2 to 1.1/2 excl.	$\pm 0.005(0.13)$	± 10	0.065" (1.65mm)	1/8(3.2)	0
1.1/2 to 3.1/2 excl.	$\pm 0.010(0.25)$	± 10	0.095" (2.41mm)	3/16(4.8)	0
3.1/2 to 5.1/2 excl.	$\pm 0.015(0.38)$	± 10	0.150" (3.81mm)	3/16(4.8)	0
5.1/2 to 8 excl.	$\pm 0.030(0.76)$	± 10	0.150" (3.81mm)	3/16(4.8)	0

ASTM A312/A312M (Latest Edition)

Seamless & Welded Austenitic Steel Pipe for high temperature and general corrosive duties.

TOLERANCES – In accordance with ASTM A530

Nominal Pipe Size	Permissible Variations in Outside Diameter	
	Over	Under
1/8 to 1.1/2 inc.	1/64(0.015)	1/32(0.031)
Over 1.1/2 to 4 inc.	1/32(0.031)	1/32(0.031)
Over 4 to 8 inc.	1/16(0.062)	1/32(0.031)
Over 8 to 18 inc.	3/32(0.093)	1/32(0.031)
Over 18 to 26 inc.	1/8(0.125)	1/32(0.031)
Over 26 to 30 inc.	5/32(0.156)	1/32(0.031)

Minimum wall thickness not to exceed 12.5% under nominal wall.

ASTM A790/A790M (Latest Edition)

Seamless & Welded Ferritic/Austenitic Stainless Steel Pipe.

TOLERANCES

NPS	Permissible Variations in Outside Diameter (in.)	
	Over	Under
1/8 to 1.1/2 inc.	1/64(0.015)	1/32(0.031)
Over 1.1/2 to 4 inc.	1/32(0.031)	1/32(0.031)
Over 4 to 8 inc.	1/16(0.062)	1/32(0.031)
Over 8 to 18 inc.	3/32(0.093)	1/32(0.031)
Over 18 to 26 inc.	1/8(0.125)	1/32(0.031)
Over 26 to 30 inc.	5/32(0.156)	1/32(0.031)

Minimum wall thickness not to exceed 12.5% under nominal wall.