



Stainless Steel Tubes

Specification	Allowable Outside Diameter Variations in mm			Allowable Wall Thickness Variations		Exact Length Tolerances in mm		Testing
	Diameter	Over	under	Over %	Under %	Over	Under	
ASTMA - 270 Seamless & Welded Sanitary Tubing	25.4	.05	.20	+ 12.5	- 12.5	3.2	0	Product Analysis Reverse Flattening test 100% Hydrostatic Test External polish on all tubes Refer to ASTMA-270
	38.1	.05	.20	+ 12.5	- 12.5	3.2	0	
	50.8	.05	.28	+ 12.5	- 12.5	3.2	0	
	63.5	.05	.28	+ 12.5	- 12.5	3.2	0	
	76.2	.08	.30	+ 12.5	- 12.5	3.2	0	
	101.6	.08	.38	+ 12.5	- 12.5	3.2	0	
ASTMA - 249 Welded Boiler, Superheater, Heat Exchanger and Condenser Tubes	Under 25.4	0.1016	0.1016	+ 10	- 10	3.175	0	Product Analysis Tension Test Flattening Test Flare Test/Flange Test * reverse Bend Test Hardness Test 100 % Hydrostatic Test * Reverse Flattening test Refer to ASTMA - 450 * Wherever applicable
	25.4 - 38.1 incl.	0.1524	0.1524	+ 10	- 10			
	38.1 - 50.8 excl.	0.2032	0.2032	+ 10	- 10			
	50.8 - 63.5 excl.	0.254	0.254	+ 10	- 10			
	63.5 - 76.2 excl.	0.3048	0.3048	+ 10	- 10			
	76.2 - 101.6 incl.	0.381	0.381	Minimum Wall tubes + 18% - 0 available on request		4.76	0	
ASTMA - 312 Seamless & Welded Pipe	13.7 - 48.3 incl.	04 0	0.79	Minimum Wall 12.5% under nominal wall Specified		6.4	0	Product Analysis Tension Test Flattening Test 100% Hydrostatic Test Refer to ASTMA - 530
	48.3 - 114.3 incl.	.79	0.79			6.4	0	
	114.3 - 220 incl.	01.59	0.79			(Normally Random length ordered)		
ASTMA - 269 Seamless & Welded Service	Upto 12.7	0.13	0.13	+ 15	- 15	3.2	0	Product Analysis Flare Test Flant Test (Welded only) Hardness Test Reverse Flattening test (Welded only) 100% Hydrostatic test Refer to ASTMA - 269
	12.7 - 38.1 excl.							
	38.1 - 88.99 excl.							
	88.9 - 139.7 excl.							
	139.7 - 2032 excl.	0.25	0.25	+ 10	- 10	4.8	0	
		0.38	0.38	+ 10	- 10	4.8	0	
		0.76	0.75	+ 10	- 10	4.8	0	
ASTMA - 213 Seamless Boiler Superheater and Heat Exchanger Tubes	Under 25.4	0.1016	0.1016	+ 20	- 0	3.175	0	Product Analysis Tension Test Flattening Test Flare Test Hardness Test 100% Hydrostatic Test Refer to ASTMA - 450
	25.4 - 38.1 incl.	0.1524	0.1524	+ 20	- 0			
	38.1 - 50.8 excl.	0.2032	0.2032	+ 22	- 0			
	50.8 - 63.5 incl.	0.254	0.254	+ 22	- 0			
	63.5 - 76.2 excl.	0.3048	0.3048	+ 22	- 0			
	76.2 - 101.6 incl.	0.381	0.381	+ 22	- 0	4.76	0	

ASTMA - 268 Seamless & welded Ferritic stainless steel tubes	Under 12.7	0.13	0.13	+ 15	- 15	3.2	0	Product Analysis Tension Test, flare test flange Test, (ERW only) hardness test, reverse flattening test, 100% hydrostatic test.
	12.7 - 38.1 excl.	0.13	0.13	+ 10	- 10	3.2	0	
	38.1 - 88.9 excl.	0.25	0.25	+ 10	- 10	4.8	0	
	88.9 - 168.3 excl.	0.38	0.38	+ 10	- 10	4.8	0	
ASTMA - 358 for welded big Diameter Pipes	For all sizes	+ 0.5%	+ 0.5%	No LIMIT	-0.3 mm	Customer's Specification		Product Analysis Transverse tension test, Transverse guided bend test. Hydrostatic test, radiographic examination (as specified dye penetrant (Optional)

ITEM SPECIFICATION	ITEM											
	CHEMICAL COMPOSITION	TENSION TEST	ROCKWELL HARDNESS	FLATTENING	FLARING	HYDROSTATIC	ULTRASONIC	EDDY CURRENT	INTERGRANULAR CORROSION	GRAIN SIZE	SURFACE QUALITY	SIZE
ASTMA312	▲	▲	★	▲	★	▲	★	★	★	★	▲	▲
ASTMA213	▲	▲	▲	▲	▲	▲	★	★	★	●	▲	▲
ASTMA269	▲	★	▲	★	▲	▲	★	★	★	★	▲	▲
ASTMA511	▲	★	★	★	★	★	★	★	★	★	▲	▲
ASTMA789	▲											
ASTMA790	▲											
JISG3459	▲	▲	★	▲	★	▲	★	★	★	●	▲	▲
JISG3463	▲	▲	★	▲	▲	▲	★	★	★	●	▲	▲
DIN17456	▲	▲	★	★	★	▲	★	★	★	★	▲	▲
DIN17458	▲	▲	★	▲	▲	▲	▲ ●	▲ ●	★	★	▲	▲
GB/T14975-02	▲	▲	★	▲	★	★	★	★	★	★	▲	▲
GB/T14976-02	▲	▲	★	★	★	▲	★	★	▲	★	▲	▲
GB13296-91	▲	▲	▲	▲	▲	▲	▲	▲	▲	★	▲	▲

- ▲ implies necessity by standard.
- ★ means mutually negotiable or complimentary requests.
- means Hydro test can be taken place by Ultrasonic or Eddy current test.
- For 304H, 316H, 347H, grain size test shall be carried.
- The tube with o.d. under 101.6mm, acc. to agreement
- IGC test is necessity for ship building.

Standard Weight of Stainless Steel Bar

Steel Grade	Specific Gravity	Calculating Formula
TP 304	7.93	$W=0.006228xD^2$
TP 316	7.98	$W=0.006267xD^2$

Standard Weight of Stainless Steel Pipe/Tube

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