

Not For Production Use (For Reference Only)

ASTM A789/A 789M-05

Specification for Welded Ferritic/Austenitic Stainless Steel Tubing for General Service

Note - Identical to ASME SA789

ASTM Chemical Requirements

Elements	2205
	S31803
(C) Carbon, max	0.030
(Mn) Manganese, max	2.000
(P) Phosphorus, max	0.030
(S) Sulfur, max	0.020
(Si) Silicon max	1.0
(Ni) Nickel	4.50 - 6.50
(Cr) Chromium	21.0-23.0
(Mo) Molybdenum	3.00-3.50
(N) Nitrogen	0.08-0.20

Heat Treatment

-The material will be heat treated at 1870 -2010 degrees and rapid cooling in water quenched.

Surface Condition

-The tubes, after heat treatment, shall be chemically descaled or pickled free of scale. Pickling or chemical descaling is not needed if bright annealing is used.

Product Marking

-Man. Name or brand, spec. number, and grade on tube. For tubes less than 1 1/4" in diameter or under 3' in length, a tag may be secured to the box or bundle.

Mechanical Testing Test

Test	ASTM	United
Flare	Required	Required
Flatten	Required	Required
Flange	Required	Required
Reverse Bend	Required	Required
Tension Test	Required	Required
Eddy Current	Required*	Required
Hydrostatic Pressure	Required*	Not Required
	Not Required	Required for tubes over 20'

Mechanical Properties

Type	Tensile	Yield	Elong. At 2"	Hardness
	min, ksi (Mpa)	min, ksi (Mpa)	min, %	Rockwell C, max.
2205	90 (620)	65 (450)	25	30.5

* ASTM required either an Eddy Current or a Hydrostatic test be performed.

Dimensional Requirements

Size	Outside Diameter		Squareness		Length**		Straightness		Weld Height		Wall***	
	ASTM	United	ASTM	United	ASTM	United	ASTM	United	ASTM	United	ASTM	United
1"	+/- .005	+/- .005	N/A	.015	-0 +1/8	-0 +1/8	.030/36"	.015/36"	.006	+0.004	+/- 10%	+/- 10%
1-1/2"	+/- .010	+/- .006	N/A	.025	-0 +1/8	-0 +1/8	.030/36"	.015/36"	.006	+0.006	+/- 10%	+/- 10%
2"	+/- .010	+/- .010	N/A	.035	-0 +3/16	-0 +3/16	.030/36"	.015/36"	.006	+0.006	+/- 10%	+/- 10%
2-1/2"	+/- .010	+/- .010	N/A	.040	-0 +3/16	-0 +3/16	.030/36"	.015/36"	.010	+0.010	+/- 10%	+/- 10%
3"	+/- .010	+/- .010	N/A	.045	-0 +3/16	-0 +3/16	.030/36"	.015/36"	.010	+0.010	+/- 10%	+/- 10%
3-1/2"	+/- .015	+/- .015	N/A	.045	-0 +3/16	-0 +3/16	.030/36"	.015/36"	.010	+0.010	+/- 10%	+/- 10%
4"	+/- .015	+/- .015	N/A	.045	-0 +3/16	-0 +3/16	.030/36"	.015/36"	.010	+0.010	+/- 10%	+/- 10%

** These tolerances apply to 24 ft. lengths or less. For lengths over 24 ft. add a tolerance of 1/8 in. for each 10 ft., or fraction thereof, up to a max of 1/2 in.

*** Applicable only when nominal wall is specified. When minimum wall is specified, the tolerance is -0 +18%.