

ASTM A513 MECHANICAL TUBING



**Cold-formed ERW mechanical tubing: Squares from 1" to 4" and equivalent Rectangles
Rounds from 1" to 5"
Wall thickness from .035 to .203"**

TNT Pipe and Tube's mechanical tubing is produced in accordance with the mechanical and chemical property requirements of ASTM A513 Type 1 & Type 2, with Grade MT 1010 to MT 1020 unless otherwise specified:

TOLERANCES, OUTSIDE DIMENSION, ROUND TUBING		
ROUND OD TUBING	WALL (IN.)	FLASH IN TUBING TOLERANCES (IN.)
1" to 1-1/8"	.035 - .125	+/- 0.0035
Over 1-1/8" to 2", incl.	.035 - .203	+/- 0.005
Over 2" to 2-1/2", incl.	.049 - .203	+/- 0.006
Over 2-1/2" to 3", incl.	.049 - .203	+/- 0.008
Over 3" to 3-1/2", incl.	.065 - .203	+/- 0.009
Over 3-1/2" to 4", incl.	.065 - .203	+/- 0.009
Over 4" to 5", incl.	.065 - .203	+/- 0.009

OVALITY TOLERANCE

The ovality may be 50% greater than the outside tolerances but the mean outside diameter shall be within the specified tolerance

STRAIGHTNESS TOLERANCE

Square & Rectangular Tubing	1/16" in 3-ft
Round Tubing	0.03" in 3-ft

ROUND LENGTH TOLERANCE

LENGTHS (FT.)	TOLERANCES (IN.)
Over 10' to 24', incl.	+/- 1/4"
Over 24' to 34', incl.	+/- 5/16"
Over 34' to 40', incl.	+/- 3/8"

SQUARE & RECTANGULAR WALL THICKNESS TOLERANCE

*+/- 10% of nominal wall thickness

GRADE	HEAT ANALYSIS CHEMICAL COMPOSITION LIMITS, %				MECHANICAL PROPERTIES		
	CARBON	MANGANESE	PHOSPH, MAX	SULFUR, MAX	YIELD STRENGTH, MIN	ULTIMATE STRENGTH, MIN	ELONGATION IN 2", MIN
1010	0.08 - 0.13	0.30 - 0.60	0.035	0.035	32 ksi	45 ksi	15%
1015	0.13 - 0.18	0.30 - 0.60	0.035	0.035	35 ksi	48 ksi	15%
1020	0.18 - 0.23	0.30 - 0.60	0.035	0.035	38 ksi	52 ksi	12%

TOLERANCE, OUTSIDE DIMENSIONS, SQUARE & RECTANGULAR TUBING	
WIDEST SIDE (IN.)	TOLERANCE (IN.)
1" to 1-1/8"	+/- 0.005
Over 1-1/8" to 1-1/2", incl.	+/- 0.006
Over 1-1/2" to 2", incl.	+/- 0.008
Over 2" to 3", incl.	+/- 0.010
Over 3" to 4", incl.	+/- 0.020

Measured at least 2" from cut end of tubing

SQUARENESS TOLERANCE

Maximum = widest dimension across flats x 0.006 in.

TWIST TOLERANCE

LARGEST DIMENSION (IN.)	TOLERANCE IN 3-FEET (IN.)
1" to 1-1/2", incl.	0.050
Over 1-1/2" to 2-1/2", incl.	0.062
Over 2-1/2" to 4", incl.	0.075
Over 4" to 6", incl.	0.087

SQUARE & RECTANGULAR LENGTH TOLERANCE

LENGTHS (FT.)	TOLERANCES (IN.)
Over 12' to 20', incl.	+/- 1/8"
Over 20' to 30', incl.	+/- 3/16"
Over 30' to 40', incl.	+/- 3/8"

ROUND WALL THICKNESS TOLERANCE

WALL (INCHES)	OUTSIDE DIAMETER							
	1"		Over 1" to 1-15/16"		Over 1-15/16" to 3-3/4"		Over 3-3/4" to 5"	
	Plus	Minus	Plus	Minus	Plus	Minus	Plus	Minus
.065 & .072	0.005	0.009	0.004	0.010	0.003	0.011		
.083 - .134	0.006	0.010	0.005	0.011	0.004	0.012	0.003	0.013
.148 - .180			0.006	0.012	0.005	0.013	0.004	0.014
.203					0.007	0.015	0.006	0.016

OTHER TUBE SPECIFICATIONS: Mill Lengths from 16.5-feet to 40-feet
Weld on Large Side
Flash In
Hot Rolled, Hot Rolled-Pickled & Oiled, Cold Rolled, Galvanized
Custom Bundle Configurations
Saw cut end finish

ASTM A513 MECHANICAL TUBING

SQUARE, RECTANGULAR & ROUND

HR, HRP&O, CR & GALVANIZED



OUTSIDE DIAMETER	NOMINAL WALL THICKNESS & WEIGHT PER FOOT													
	20 GA	18 GA	16 GA	15 GA	14 GA	13 GA	12 GA	11 GA	1/8	10 GA	9 GA	8 GA	7GA	3/16
	0.035	0.049	0.065	0.072	0.083	0.095	0.109	0.120	0.125	0.134	0.148	0.165	0.180	0.188
1.50" x 1.00"	0.578	0.800	1.048	1.153	1.317	1.492	1.691	1.844	1.913	2.034				
1.50"-SQ	0.697	0.967	1.269	1.398	1.600	1.815	2.062	2.252	2.338	2.489	2.721	2.996	3.231	3.355
2.00" x 1.00"	0.697	0.967	1.269	1.398	1.600	1.815	2.062	2.252	2.338	2.489	2.721	2.996	3.231	3.355
2.00" x 1.50"	0.816	1.134	1.490	1.643	1.882	2.138	2.433	2.660	2.763	2.945	3.225	3.557	3.843	3.994
2.00"-SQ		1.300	1.711	1.888	2.164	2.461	2.803	3.068	3.188	3.401	3.728	4.118	4.455	4.633
2.50" x 1.50"		1.300	1.711	1.888	2.164	2.461	2.803	3.068	3.188	3.401	3.728	4.118	4.455	4.633
3.00" x 1.00"		1.300	1.711	1.888	2.164	2.461	2.803	3.068	3.188	3.401	3.728	4.118	4.455	4.633
3.00" x 1.50"					2.446	2.784	3.174	3.476	3.613	3.856	4.231	4.679	5.067	5.272
2.50"-SQ					2.728	3.107	3.544	3.884	4.038	4.312	4.734	5.240	5.679	5.911
3.00" x 2.00"					2.728	3.107	3.544	3.884	4.038	4.312	4.734	5.240	5.679	5.911
3.00"-SQ					3.293	3.753	4.286	4.700	4.888	5.223	5.741	6.362	6.903	7.190
4.00" x 2.00"					3.293	3.753	4.286	4.700	4.888	5.223	5.741	6.362	6.903	7.190
3.50"-SQ					3.857	4.399	5.027	5.516	5.738	6.134	6.747	7.484	8.127	8.468
5.00" x 2.00"					3.857	4.399	5.027	5.516	5.738	6.134	6.747	7.484	8.127	8.468
4.00" x 3.00"					3.857	4.399	5.027	5.516	5.738	6.134	6.747	7.484	8.127	8.468
4.00"-SQ					4.422	5.045	5.768	6.332	6.588	7.045	7.753	8.606	9.351	9.747
6.00" x 2.00"					4.422	5.045	5.768	6.332	6.588	7.045	7.753	8.606	9.351	9.747
5.00" x 3.00"					4.422	5.045	5.768	6.332	6.588	7.045	7.753	8.606	9.351	9.747
1.050"-rd	0.379	0.524	0.684	0.752	0.857	0.969	1.095	1.192	1.235					
1.315"-rd	0.478	0.663	0.868	0.956	1.092	1.238	1.404	1.532	1.589	1.690	1.845	2.027		
1.660"-rd		0.843	1.107	1.221	1.398	1.588	1.806	1.974	2.049	2.184	2.390	2.634	2.845	2.956
1.900"-rd		0.969	1.274	1.406	1.611	1.831	2.085	2.281	2.370	2.527	2.769	3.057	3.307	3.437
2.000"-rd		1.021	1.343	1.483	1.699	1.933	2.201	2.409	2.503	2.670	2.927	3.234	3.499	3.638
2.375"-rd		1.217	1.604	1.771	2.032	2.313	2.638	2.890	3.004	3.207	3.520	3.894	4.220	4.391
2.875"-rd		1.479	1.951	2.155	2.475	2.821	3.220	3.531	3.671	3.923	4.310	4.776	5.181	5.395
3.500"-rd					3.029	3.455	3.948	4.332	4.506	4.817	5.298	5.877	6.382	6.650

This table is based on current capabilities produced in accordance with A513.

We invite your inquiry for other sizes, gauges or specifications.