

**Cold-formed ERW mechanical tubing: Squares from 2" to 4" and equivalent Rectangles  
Rounds from 1.90" to 3.50"  
Wall thickness from .083" to .203"**

Heidtman Tubular Products' 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.)
Over 1-1/8" to 2", incl.	.083 - .203	+/- 0.005
Over 2" to 2-1/2", incl.	.083 - .203	+/- 0.006
Over 2-1/2" to 3", incl.	.083 - .203	+/- 0.008
Over 3" to 3-1/2", incl.	.083 - .203	+/- 0.009
Over 3-1/2" to 4", incl.	.083 - .203	+/- 0.009
Over 4" to 5", incl.	.083 - .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.)
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.)
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"

WALL (INCHES)	ROUND WALL THICKNESS TOLERANCE					
	OUTSIDE DIAMETER					
	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
.083 - .134	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, Galvanized  
Custom Bundle Configurations  
Saw cut end finish

# ASTM A513 MECHANICAL TUBING

## SQUARE, RECTANGULAR & ROUND

HR, HRP&O, & GALVANIZED

OUTSIDE DIAMETER	NOMINAL WALL THICKNESS & WEIGHT PER FOOT									
	14 GA 0.083	13 GA 0.095	12 GA 0.109	11 GA 0.120	1/8 0.125	10 GA 0.134	9 GA 0.148	8 GA 0.165	7GA 0.180	3/16 0.188
2.00"-SQ	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"	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"	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		5.045	5.768	6.332	6.588	7.045	7.753	8.606	9.351	9.747
6.00" x 2.00"		5.045	5.768	6.332	6.588	7.045	7.753	8.606	9.351	9.747
5.00" x 3.00"		5.045	5.768	6.332	6.588	7.045	7.753	8.606	9.351	9.747
1.900"-rd	1.611	1.831	2.085	2.281	2.370	2.527	2.769			
2.000"-rd	1.699	1.933	2.201	2.409	2.503	2.670	2.927	3.234	3.499	3.638
2.375"-rd	2.032	2.313	2.638	2.890	3.004	3.207	3.520	3.894	4.220	4.391
2.500" rd	2.143	2.440	2.783	3.050	3.171	3.386	3.718	4.115	4.460	4.642
2.875"-rd	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.**