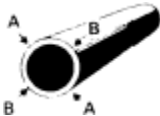


# STANDARD TOLERANCES EXTRUDED TUBE DIAMETER

**Allowable deviation of mean diameter from specified diameter (size)  
Tolerance, Inches plus and minus**

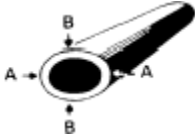
Specified diameter Inches	Alloys 5083, 5086, 5454	Other alloys
0.500- 0.999	0.015	0.010
1.000- 1.999	0.018	0.012
2.000- 3.999	0.023	0.015
4.000- 5.999	0.038	0.025
6.000- 7.999	0.053	0.035
8.000- 9.999	0.068	0.045
10.000-11.999	0.083	0.055
12.000-13.999	0.098	0.065
14.000-15.999	0.113	0.075
16.000-17.999	0.128	0.085



**Difference between 1/2 (AA+BB)  
and specified diameter**

**Allowable deviation of diameter at any point from specified diameter (size)  
Tolerance, Inches plus and minus**

Specified diameter Inches	Alloys 5083, 5086, 5454	Other alloys
0.500- 0.999	0.030	0.020
1.000- 1.999	0.038	0.025
2.000- 3.999	0.045	0.030
4.000- 5.999	0.075	0.050
6.000- 7.999	0.113	0.075
8.000- 9.999	0.150	0.100
10.000-11.999	0.188	0.125
12.000-13.999	0.225	0.150
14.000-15.999	0.263	0.175
16.000-17.999	0.300	0.200



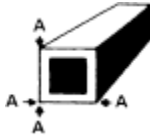
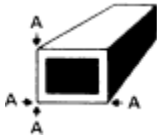
**Difference between AA+BB  
and specified diameter**

# STANDARD TOLERANCES EXTRUDED TUBE

## WIDTH AND DEPTH

**Allowable deviation of width or depth  
at corners from specified width or depth  
Tolerance, Inches plus and minus  
square, rectangular**

Specified width or depth Inches	Alloys 5083, 5086, 5454	Other alloys
0.500- 0.749	0.018	0.012
0.750- 0.999	0.021	0.014
1.000- 1.999	0.027	0.018
2.000- 3.999	0.038	0.025
4.000- 4.999	0.053	0.035
5.000- 5.999	0.068	0.045
6.000- 6.999	0.083	0.055
7.000- 7.999	0.098	0.065
8.000- 8.999	0.113	0.075
9.000- 9.999	0.128	0.085
10.000-10.999	0.143	0.095
11.000-12.000	0.158	0.105



**Difference between AA and specified width or depth**

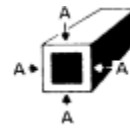
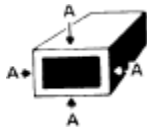
# STANDARD TOLERANCES EXTRUDED TUBE

## WIDTH AND DEPTH

**Allowable deviation of width or depth  
not at corners from specified width or depth**

**Tolerance, Inches plus and minus**

Specified width or depth Inches	Square hexagonal, octagonal		Rectangular All Alloys
	Alloys 5083, 5086, 5454	Other alloys	
0.500- 0.749	0.030	0.020	The tolerance for the width is the value in the previous column for a dimension equal to the depth and conversely, but in no case is the tolerance less than at the corners. Example: The width tolerance of a 1 x 3 inch alloy 6061 rectangular tube is $\pm 0.025$ inch and the depth tolerance $\pm 0.035$ inch.
0.750- 0.999	0.030	0.020	
1.000- 1.999	0.038	0.025	
2.000- 3.999	0.053	0.035	
4.000- 4.999	0.068	0.045	
5.000- 5.999	0.083	0.055	
6.000- 6.999	0.098	0.065	
7.000- 7.999	0.108	0.075	
8.000- 8.999	0.123	0.085	
9.000- 9.999	0.143	0.095	
10.000-10.999	0.158	0.105	
11.000-12.000	0.173	0.115	



**Difference between AA and specified width, depth or distance across flat**

# STANDARD TOLERANCES EXTRUDED TUBE

**Allowable deviation of  
mean wall thickness from specified wall thickness  
Tolerance, Inches plus and minus**

Specified wall thickness Inches	Under 1,250		1,250 – 2,999	
	Alloys 5083, 5086, 5654	Other alloys	Alloys 5083, 5086, 5454	Other alloys
Under 0.047	0.009	0.006	—	—
0.047-0.061	0.011	0.007	0.012	0.008
0.062-0.077	0.012	0.008	0.012	0.008
0.078-0.124	0.014	0.009	0.014	0.009
0.125-0.249	0.014	0.009	0.014	0.009
0.250-0.374	0.017	0.011	0.017	0.011
0.375-0.499	—	—	0.023	0.015
0.500-0.749	—	—	0.030	0.020
0.750-0.999	—	—	—	—
1.000-1.499	—	—	—	—
1.500-2.000	—	—	—	—
2.001-2.499	—	—	—	—
2.500-2.999	—	—	—	—
3.000-3.499	—	—	—	—
3.500-4.000	—	—	—	—
Specified wall thickness Inches	3,000 – 4,999		5,000 and over	
	Alloys 5083, 5086, 5654	Other alloys	Alloys 5083, 5086, 5454	Other alloys
Under 0.047	—	—	—	—
0.047-0.061	0.012	0.008	0.015	0.010
0.062-0.077	0.014	0.009	0.018	0.012
0.078-0.124	0.015	0.010	0.023	0.015
0.125-0.249	0.020	0.013	0.030	0.020
0.250-0.374	0.024	0.016	0.038	0.025
0.375-0.499	0.032	0.021	0.053	0.035
0.500-0.749	0.042	0.028	0.068	0.045
0.750-0.999	0.053	0.035	0.083	0.055
1.000-1.499	0.068	0.045	0.098	0.065
1.500-2.000	—	—	0.113	0.075
2.001-2.499	—	—	0.128	0.085
2.500-2.999	—	—	0.143	0.095
3.000-3.499	—	—	0.158	0.105

**Outside diameter  
Inches**





**Difference  
between  
1/2 (AA + BB)  
and specified  
wall thickness**


3.500-4.000	—	—	0.173	0.115	
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# STANDARD TOLERANCES EXTRUDED TUBE WALL THICKNESS

Allowable deviation of  
mean wall thickness from specified wall thickness  
Tolerance, Inches plus and minus

All alloys		Eccentricity 
Under 0.047 to 2.000	Plus and minus 10% of mean wall thickness max $\pm 0.060$ min $\pm 0.010$	
2.001-4.000	$\pm 0.120$	Difference between AA and mean wall thickness

Specified wall thickness Inches	Under 5,000		5,000 and over		Circumscribing circle diameter Inches 
	Alloys 5083, 5086, 5454	Other alloys	Alloys 5083, 5086, 5454	Other alloys	
Under 0.047	0.008	0.005	0.012	0.008	Difference between $1/2 (AA+BB)$ and specified wall thickness
0.047-0.061	0.009	0.006	0.014	0.009	
0.062-0.124	0.011	0.007	0.015	0.010	
0.125-0.249	0.012	0.008	0.023	0.015	
0.250-0.374	0.017	0.011	0.030	0.020	
0.375-0.499	0.021	0.014	0.045	0.030	
0.500-0.749	0.038	0.025	0.060	0.040	
0.750-0.999	0.053	0.035	0.075	0.050	
1.000-1.499	0.068	0.045	0.090	0.060	
1.500-2.000	—	—	0.105	0.070	

All Alloys		Plus and minus 10% of mean wall thickness max $\pm 0.060$ min $\pm 0.010$	Eccentricity 
Under 0.047	0.005		
0.047-0.061	0.007		
0.062-0.124	0.010		
0.125-0.249	0.015		
0.250-0.374	0.025		
0.375-0.499	0.030		
0.500-0.749	0.040		
0.750-0.999	0.050		
1.000-1.499	0.060		
1.500-2.000	—		


## STANDARD TOLERANCES EXTRUDED TUBE

Allowable deviation from specified length  
Tolerance, Inches plus except as noted

Specified outside diameter or width, Inches	Specified length, Feet							
	Straight				Coiled			
	Up thru 12	Over 12 thru 30	Over 30 thru 50	Over 50	Up thru 100	Over 100 thru 250	Over 250 thru 500	Over 500
0.500-1.249	1/8	1/4	3/8	1	+5%, -0%	±10%	±15%	±20%
1.250-2.999	1/8	1/4	3/8	1	—	—	—	—
3.000-7.999	3/16	5/16	7/16	1	—	—	—	—
8.000 and over	1/4	3/8	1/2	1	—	—	—	—

## STANDARD TOLERANCES EXTRUDED TUBE TWIST

Allowable deviation from straight

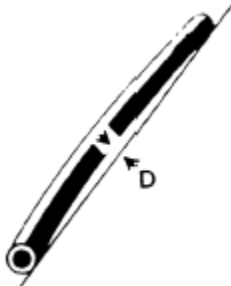
Temper	Specified width Inches	Specified thickness Inches	Tolerance, Degrees	
			 Y (max) in, Degrees	
			In total length or in any segment of one ft. or more of total length	Maximum for total length
All except 0,	0.500 thru 1.499	All	1 x measured length, ft	7
TX 510,	1.500-2.999	All	1/2 x measured length, ft	5
TX511	3.000 and over	All	1/4 x measured length, ft	3

TX510	0.500	0.095 and over		
TX511	0.500-1.499	0.095 and over	1 x measured length, ft	7
1.500-2.999	1.500-2.999	0.095 and over	1/2 x measured length, ft	5
	3.000 and over	0.095 and over	1/4 x measured length, ft	4

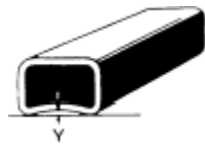


# STANDARD TOLERANCES EXTRUDED TUBE STRAIGHTNESS

Allowable deviation (D) from straight

Temper	Specified outside diameter or width Inches	Tolerance, Inches	 <b>In total length or in any segment of one ft. or more of total length</b>
All except 0	0.500-5.999	$0.019 \times \text{measured length, ft.}$	
TX510	6.000 and over	$0.020 \times \text{measured length, ft.}$	
TX510	0.500 and over	Tolerances for T3510, T4510, T6510, T73510, T76510 and T8510 tempers shall be as agreed upon between purchaser and vendor at the time the contract or order is entered.	

# FLATNESS

Minimum thickness of metal forming the surface Inches	Tolerance, Inches		 <b>Maximum allowable deviation Y</b>
	Widths up thru 1 in. or any 1 in. increment of wider surfaces	Widths over 1 in. thru 5.999 in.	
Up thru 0.187	0.006	$0.006 \times W$ Inches	
0.188 and over	0.004	$0.004 \times W$ Inches	