TOLERANCES

ALUMINUM ROD & BAR

Diameter Inches	Tolerance Inches
COLD FINISHED ROD	
0.125 - 0.500	±0.0015
0.501 - 1.000	±0.0020
1.001 - 1.500	±0.0025
1.501 - 2.000	±0.0040
2.001 - 3.000	±0.0060
3.001 - 3.499	±0.0080
3.500 - 5.000	±0.0120
5.001 - 8.250	±0.016
EXTRUDED ROD/6061	
Under.125	±.006
.125 - .249	±.007
.250 - .499	±.008
.500 - .749	±.009
.750 - .999	±.010
1.000 - 1.499	±.012
1.500 - 1.999	±.014
2.000 - 3.999	±.024
4.000 - 5.999	±.034
6.000 - 7.999	±.044
8.000 - 9.999	±.064
10.000 - 11.999	±.074
12.000 - 13.999	±.084

Specified Thickness, or Width, In.	Thickness Tolerance Inches	Width Tolerance Inches
COLD FINISHED FLAT		
.065 - .500	±.002	±.002
.501 - 1.00	±.0025	±.0025
1.001 - 1.500	±.003	±.003
1.501 - 2.000	±.005	±.005
2.001 - 3.000	±.008	±.008
3.001 - 4.000	±.010	±.010
4.001 - 6.000	±.015	±.020

EXT. SQUARES/ FLATS	THICKNESS/WIDTH TOLERANCES	
Specified Thickness, or Width, In.	Widths Thru 9.99	Widths 10.00 - 13.99
Under .125	±.006	±.014
.125 - .249	±.007	±.015
.250 - .499	±.008	±.016
.500 - .749	±.009	±.017
.750 - .999	±.010	±.018
1.0 - 1.49	±.012	±.019
1.5 - 1.99	±.014	±.024
2.0 - 3.99	±.024	±.034
4.0 - 5.99	±.034	±.044
6.0 - 7.99	±.044	±.054
8.0 - 9.99	±.054	±.064
10.0 -11.99	—	±.074
12.0 -13.99	—	±.084

TOLERANCES

ALUMINUM DRAWN TUBE — ROUND

Diameter Tolerances/Plus & Minus, Inches

Allowable Deviation of Mean Diam. from Size	Allowable Deviation of Diam. from Size at any Point: Not Heat Treated	Heat Treated	Annld.
Up thru 0.500	.003	.003	.006	.018
0.501 - 1.000	.004	.004	.008	.018
1.001 - 2.000	.005	.005	.010	.030
2.001 - 3.000	.006	.006	.012	.036
3.001 - 5.000	.008	.008	.016	.048
5.001 - 6.000	.010	.010	.020	.060
6.001 - 8.000	.015	.015	.030	.090
8.001 - 10.000	.020	.020	.040	.012
10.001 - 12.000	.025	.025	.050	.150

TOLERANCES

Wall Tolerances/Plus & Minus, Inches

Allowable Deviation of Mean Diam. from Size	Allowable Deviation of Diam. from Size at any Point: Non-Heat-Treatable	Heat Treatable
0.010 - 0.035	.002	.002	
0.036 - 0.049	.003	.003	
0.050 - 0.083	.004	.004	±10% of specified wall ±.003" minimum
0.084 - 0.120	.005	.006	
0.121 - 0.203	.006	.008	
0.204 - 0.300	.008	.012	
0.301 - 0.375	.015	.020	
0.376 - 0.500	.020	.030	

TOLERANCES

ALUMINUM EXTRUDED TUBE-ROUND

Diameter Tolerance/Plus & Minus, Inches

Diam. Inches (Size)	Deviation from Size of Mean Diam.: 5083, 5086 5454	Other Alloys	Deviation of Diam. from Size at any Point: 5083, 5086 5454	Other Alloys
0.500 - 0.999	.015	.010	.030	.020
1.000 - 1.999	.018	.012	.038	.025
2.000 - 3.999	.023	.015	.045	.030
4.000 - 5.999	.038	.025	.075	.050
6.000 - 7.999	.053	.035	.113	.075
8.000 - 9.999	.068	.045	.150	.100
10.000 - 11.999	.083	.055	.188	.125
12.000 - 13.999	.098	.065	.225	.150
14.000 - 15.999	.113	.075	.263	.175
16.000 - 17.999	.128	.085	.300	.200

Wall Tolerances/Plus & Minus, Inches

Allowable Deviation of Mean Wall from Specified Wall

Spec. Wall Inches	Under 1.250 OD: 5083 5086 5454	Other Alloys	1.250-2.999 OD: 5083 5086 5454	Other Alloys	3.000-4.999 OD: 5083 5086 5454	Other Alloys	5.000 and over: 5083 5086 5454	Other Alloys
Under 0.047	.009	.006	—	—	—	—	—	—
0.047-0.061	.011	.007	.012	.008	.012	.088	.015	.010
0.062-0.077	.012	.008	.012	.008	.014	.009	.018	.012
0.078-0.124	.014	.009	.014	.009	.015	.010	.023	.015
0.125-0.249	.014	.009	.014	.009	.020	.013	.030	.020
0.250-0.374	.017	.011	.017	.011	.024	.016	.038	.025
0.375-0.499	—	—	.023	.015	.032	.021	.053	.035
0.500-0.749	—	—	.030	.020	.042	.028	.068	.045
0.750-0.999	—	—	—	—	.053	.035	.083	.055
1.000-1.499	—	—	—	—	.068	.045	.098	.065
1.500-2.000	—	—	—	—	—	—	.113	.075
2.001-2.499	—	—	—	—	—	—	.128	.085
2.500-2.999	—	—	—	—	—	—	.143	.095
3.000-3.499	—	—	—	—	—	—	.158	.105
3.500-4.000	—	—	—	—	—	—	.173	.115

Allowable Wall Deviation at any point (Eccentricity)

2" Wall & Under:	Plus & minus 10% of mean wall .060" maximum, .010" minimum
Over 2"	±.120"

TOLERANCES

ALUMINUM PIPE

Schedule 40 & 80

Outside Diameter: Pipe Size Inches	Tolerance Inches	Wall: Size Inches	Tolerance %
Under 2	+.015 - .031	All	− 12½
2 and Up	±1%		

ALUMINUM TREAD PLATE/SHEET

Thick In.	Tolerance, In. Plus	Minus	Thick In.	Tolerance, In. Plus	Minus
.100	.008	.012	.250	.018	.030
.125	.010	.015	.375	.025	.045
.156	.011	.019	.500	.035	.060
.188	.013	.023	.625	.044	.075

Specified thickness does not include height of pattern. (Minimum height of raised pattern = 0.040 inch.)

ALUMINUM SHEET THICKNESS* TOLERANCES (INCHES +/−)

By alloy group and width range

	36"		48"		60"	
	1100 3003		1100 3003		1100 3003	
Nom. Thick.	5052 6061	2024 7075	5052 6061	2024 7075	5052 6061	2024 7075
.190	.007	.006	.009	.007	.011	.009
.160	.007	.006	.009	.007	.011	.009
.125	.0045	.0035	.006	.0035	.007	.0045
.100	.0045	.0035	.006	.0035	.007	.0045
.090	.0035	.0025	.0045	.0035	.006	.0040
.080	.0035	.0025	.0045	.0035	.006	.0040
.063	.0030	.0020	.0035	.0030	.0050	.0030
.050	.0030	.0020	.0035	.0030	.0050	.0030
.040	.0025	.0020	.0035	.0020	.0045	.0030
.032	.0020	.0015	.0025	.0020	.0035	.0030
.025	.0015	.0015	.0020	.0025	.0030	N/A

*Tolerances are representative of Aluminum Association Standards.

RYERSON