



ASTM-B241M-16

Tolerances for the tubes we supply are shown in the tolerance tab (<https://alfiniti.com/wp-content/uploads/2022/11/STANDARD-TOLERANCES-Extruded-Tube.pdf>) and are in compliance with the latest revision of ANSI H35.2 and Aluminum Standards and Data.

A complete copy of this specification may be purchased at www.ASTM.org

A copy of ANSI H35.1 and H35.2 is available from the American National Standards Institute @ www.ansi.org

A copy of the Aluminums Standards and Date is available from the Aluminum Association at www.aluminum.org

Chemical Composition Limits

Alloy	Silicon	Iron	Copper	Manganese	Magnesium	Chromium	Zinc	Titanium	Bi	Lead	Tin	Other Elements		Aluminum
												Each	Total	
1060	0.25	0.35	0.05	0.03	0.03	...	0.05	0.03	...	...	...	0.03	...	99.60 min
1100	0.95 + Fe		0.05-0.20	0.05	...	...	0.10	...	...	...	...	0.05	0.15	99.00 min
3003	0.6	0.7	0.05-0.20	1.0-1.5	...	...	0.10	...	...	...	...	0.05	0.15	remainder
Acalad 3003	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6005	0.6-0.9	0.35	0.10	0.1	0.40-0.6	0.10	0.10	0.10	...	...	...	0.05	0.15	remainder
6005-A	0.50-0.9	0.35	0.30	0.5	0.40-0.7	0.30	0.20	0.10	...	...	...	0.05	0.15	remainder
6061	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.04-0.35	0.25	0.15	...	...	...	0.05	0.15	remainder
6063	0.20-0.6	0.35	0.10	0.10	0.45-0.9	0.10	0.10	0.10	...	...	...	0.05	0.15	remainder
6082	0.7-1.3	0.50	0.10	0.40-1.0	0.6-1.2	0.25	0.20	0.10	...	...	...	0.05	0.15	remainder



Tensile Property Limits for Pipe, Inch-Pound Units

Alloy	Temper	Pipe Size, in	Tensile Strength, min, ksi	Yield Strength (0.2% offset), min, ksi	Elongation in 2 in. or 4 x Diameter, min, %
3003	H18	Under 1	27.0	24.0	4
	H112	1 and over	14.0	5.0	25
6005	T1	All	25.0	15.0	16
	T5	All	38.0	35.0	8
	T1	All	25.0	14.5	15
6005-A	T5	All	38.0	31.0	7
	T61	Under 0.250	38.0	35.0	8
		0.250-1.000	38.0	35.0	10
6061	T6 (Extruded)	Under 1	38.0	35.0	8
		1 and over	38.0	35.0	10
6063	T6	All	30.0	25.0	8
6082	T7	All	45.0	38.0	8

Tensile Property Limits for Pipe [SI Units]

Alloy	Temper (Product)	Pipe Size, mm	Tensile Strength, min, Mpa	Yield Strength (0.2% offset), min, Mpa	Elongation min, %	
					in 50 mm	in 5 x Diameter
3003	H18	Under 25	185	165	4	...
	H112	25 and over	95	35	25	22
6005	T1	All	170	105	16	14
	T5	All	260	240	8	
6005-A	T1	All	170	100	15	
	T5	All	260	215	7	6
	T61	All	260	240	8	
6061	T6 (Extruded)	Under 25	260	240	8	...
		25 and over	260	240	10	9
6063	T6	All	205	170	8	7
6082	T6	All	310	260	10	8



Tensile Property Liits for Extruded Tube, Inch Pount Units

Temper	Specified Section or Wall Thickness, in.	Area, in ²	Tensile Strength, ksi		Yield Strength (2.0% offset), ksi		Elongation in 2 in. or 4 x Diameter, min. %
			Min	Max	Min	Max	
			Aluminum 1060				
O	all	all	8.5	14.0	2.5	...	25
H112	all	all	8.5	...	2.5	...	25
F	all	all	...	...	...	...	...
Aluminum 1100							
O	all	all	11.0	15.5	3	...	25
H112	all	all	11.0	...	3	...	25
F	all	all	...	...	...	...	...
Alloy 3003							
O	all	all	14.0	19.0	5.0	...	25
H112	all	all	14.0	...	5.0	...	25
F	all	all	...	...	...	...	...
Alcalad Alloy 3003							
O	all	all	13.0	18.0	4.5	...	25
H112	all	all	13.0	...	4.5	...	25
F	all	all	...	...	...	...	...
Alloy 6005							
T1	up thru 0.500	all	25.0		15.0		16
T5	up thru 0.124	all	38.0		35.0		8
	0.125-1.000	all	38.0		35.0		10
Alloy 6005-A							
T1	up thru 0.249	all	25.0		14.5		15
	up thru 0.249	all	38.0		31.0		7
T5	0.250-0.999	all	38.0		31.0		9
	up thru 0.249	all	38.0		35.0		8
T61	0.250-1.000	all	38.0		35.0		10



Tensile Property Limits for Extruded Tube, Inch Pount Units

Temper	Specified Section or Wall Thickness, in.	Area, in ²	Tensile Strength, ksi		Yield Strength (2.0% offset), ksi		Elongation in 2 in. or 4 x Diameter, min. %
			Min	Max	Min	Max	
Alloy 6061							
O	all	all	...	22.00	...	16.0	16
T1	up thru 0.625	all	26.0	...	14.0	...	16
T4	} all	all	26.0	...	16.0	...	16
T4510							
T4511							
T42	all	all	26.0	...	12.0	...	16
T51	up thru 0.625	all	35.0	...	30.0	...	8
T6, T62	} up thru 0.249	all	38.0	...	35.0	...	8
T6510							
T6511							
	0.250 and over	all	38.0	...	35.0	...	10
F	all	all	...	...	...	...	...
Alloy 6063							
O	all	all	...	19.0	...	...	18
T1	up thru 0.500	all	17.0	...	9.0	...	12
	0.501-1.000	all	16.0	...	8.0	...	12
T4,T42	up thru 0.500	all	19.0	...	10.0	...	14
	0.501-1.000	all	18.0	...	9.0	...	14
T5	up thru 0.500	all	22.0	...	16.0	...	8
	0.501-1.000	all	21.0	...	15.0	...	8
T52	up thru 1.000	all	22.0	30.0	16.0	25.0	8
T6, T62	up thru 0.124	all	30.0	...	25.0	...	8
	0.125-1.000	all	30.0	...	25.0	...	10
F	all	all	...	...	...	...	...



Tensile Property Limits for Extruded Tube, Inch Pount Units

Temper	Specified Section or Wall Thickness, in.	Area, in ²	Tensile Strength, ksi		Yield Strength (2.0% offset), ksi		Elongation in 2 in. or 4 x Diameter, min. %
			Min	Max	Min	Max	
			Alloy 6082				
T6	0.200-1.000	all	45		38		8



Tensile Property Limits for Extruded Tuber [SI Units]

Temper	Specified Section or Wall Thickness, mm		Area, mm ²	Tensile Strength, Mpa		Yield Strength (0.2% offset), Mpa		Elongation, % min	
	over	through		min	max	min	max	in 50 mm	in 5 x diameter
Aluminum 1060									
O	all		all	60	95	15	...	25	22
H112	all		all	60	...	15	...	25	22
F	all		all	...	...	...	...	...	...
Aluminum 1100									
O	all		all	75	105	20	...	25	22
H112	all		all	75	...	20	...	25	22
F	all		all	...	...	...	...	...	...
Alloy 3003									
O	all	...	all	95	130	35	...	25	22
H112	...						...	...	...
	all	...	all	95	...	35	...	25	22
F	all		all	...	...	...	...	...	...
Alclad Alloy 3003									
O	all		all	90	125	30	...	25	22
H112	all		all	90	...	30	...	25	22
F	all		all	...	...	...	...	...	...
Alloy 6005									
T1	...	12.50	all	170	...	105	...	16	14
T5	...	3.20		260	...	240	...	8	...
	3.20	25.00		260	...	240	...	10	9



Tensile Property Limits for Extruded Tuber [SI Units]

Temper	Specified Section or Wall				Tensile Strength, Mpa		Yield Strength (0.2% offset), Mpa		Elongation, % min	
	Thickness, mm		Area, mm ²		min	max	min	max	in 50 mm	in 5 x diameter
	over	through	over	through						
Alloy 6005-A										
T1	...	6.30	all		170	...	100	...	15	
T5	...	6.30	all		260	...	215	...	7	
		6.30	25.00	all	260	...	215	...	9	8
T61	...	6.30	all		260	...	240	...	8	
		6.30	25.00	all	260	...	240	...	10	9
Alloy 6061										
O	all		all		...	150	...	110	16	14
T1	...	16.00	all		180	...	95	...	16	14
T4	}	all	all		180	...	110	...	16	14
T4510										
T4511										
T42	all		all		180	...	85	...	16	14
T51	...	16.00	all		240	...	205	...	8	7
T6,T62	}	...	6.30	all	260	...	240	...	8	...
T610										
T6511										
T610	6,30	...	all		260	...	240	...	10	9
F	all		all		...	...	...	...	...	...



Tensile Property Limits for Extruded Tubers [SI Units]

Temper	Specified Section or Wall		Area, mm ²		Tensile Strength, Mpa		Yield Strength (0.2% offset),		Elongation, % min	
	Thickness, mm						Mpa			
	over	through	over	through	min	max	min	max	in 50 mm	in 5 x diameter
Alloy 6063										
O	all		all		...	130	...	...	18	16
T1	...	12.50	all	...	115	...	60	...	12	10
	12.50	25.00	all	...	110	...	55	...	...	10
T4, T42	...	12.50	all		130	...	70	...	14	12
	12.50	25.00	all		125	...	60	...	...	12
T5	...	12.50	all		150	...	110	...	8	7
	12.50	25.00	all		145	...	105	...	...	7
T52	...	25.00	all		150	205	110	170	8	7
T6	...	3.20	all		205	...	170	...	8	...
	3.20	25.00	all		205	205	170	...	10	9
F	all		all		...	...	...	...	...	...
Alloy 6082										
T6	5.00	25.00			310		260		8	10