

FLAT ROLLED PRODUCTS



PLATE CAPABILITIES

Availabilities in this document are subject to change without notice

AVAILABILITY FOR ALLOYS: 2024 2124 2219							
Thickness (in.)		Width (in.)		Length (in.)			
Minimum	Maximum	Minimum	Maximum	Minimum	Maximum (per finished width)		
					<=60.5"	60.6" - 74"	>74"
0.250	0.270	24	62.0	90	216	216	
0.271	0.500	24	62.0	90	350	350	
0.501	0.749	24	66.0	90	358	358	
0.750	1.500	24	84.5	90	358	358	358
1.501	2.000	24	84.5	90	358	358	358
2.001	3.000	24	84.5	90	344	344	206
3.001	4.000	24	60.5	90	334		

Please inquire about thicknesses greater than 4.000".

AVAILABILITY FOR ALLOY: 6061								
Thickness (in.)		Width (in.)		Length (in.)				
Minimum	Maximum	Minimum	Maximum	Minimum	Maximum (per finished width)			
					<=60.5"	60.6" - 74"	74.1" - 86"	86.1" - 96.5"
0.250	0.270	24	62.0	90	221	221		
0.271	0.500	24	66.0	90	350	350		
0.501	0.749	24	66.0	90	365	365		
0.750	1.500	24	84.5	90	365	365	365	
1.501	1.999	24	84.5	90	365	365	365	365
2.000	2.999	24	84.5	90	351	351	329	329
3.000	4.000	24	84.5	90	348	348	233	233
4.001	4.500	24	84.5	90	348	348	193	193
4.501	5.000	24	84.5	90	342	325	171	171
5.001	5.500	24	84.5	90	342	286	145	145
5.501	6.000	24	74.0	90	342	253		
6.001	6.500	24	74.0	90	342	225		
6.501	7.000	24	74.0	90	342	208		
7.001	7.500	24	74.0	90	317	188		
7.501	7.750	24	74.0	90	303	178		
7.751	8.000	24	74.0	90	290	169		
8.001	8.500	24	74.0	90	267	153		

AVAILABILITY FOR ALLOY: 7050								
Thickness (in.)		Width (in.)		Length (in.)				
Minimum	Maximum	Minimum	Maximum	Minimum	Maximum (per finished width)			
					<=50.0"	50.1" - 61"	61.1" - 74"	74.1" - 84.5"
0.250	0.270	24	62.0	90	216	216	216	
0.271	0.500	24	62.0	90	350	350	350	
0.501	0.749	24	66.0	90	368	368	368	
0.750	1.500	24	84.5	90	358	358	358	358
1.501	2.000	24	84.5	90	358	358	358	351
2.001	3.150	24	84.5	90	344	344	341	166

Please inquire about thicknesses greater than 3.150".

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AVAILABILITY FOR ALLOY: 7075							
Thickness (in.)		Width (in.)		Length (in.)			
Minimum	Maximum	Minimum	Maximum	Minimum	Maximum (per finished width)		
					<=60.5"	60.6" - 74"	>74"
0.250	0.270	24	62.0	90	216	216	
0.271	0.500	24	62.0	90	350	350	
0.501	0.749	24	66.0	90	358	358	
0.750	1.500	24	84.5	90	358	358	358
1.501	2.000	24	84.5	90	358	358	358
2.001	3.000	24	84.5	90	344	344	206
3.001	4.000	24	60.5	90	334		

Please inquire about thicknesses greater than 4.000".

AVAILABILITY FOR ALLOY: 7175							
Thickness (in.)		Width (in.)		Length (in.)			
Minimum	Maximum	Minimum	Maximum	Minimum	Maximum (per finished width)		
					<=60.5"	60.6" - 74"	>74"
0.25	0.270	24	62	90	216	216	
0.271	0.500	24	62	90	350	350	
0.501	0.749	24	66	90	358	358	
0.750	1.500	24	84.5	90	358	358	358
1.501	2.000	24	84.5	90	358	358	358
2.001	2.999	24	84.5	90	344	344	206
3.000	3.937	24	60.5	90	334		

AVAILABILITY FOR ALLOY: 7475							
Thickness (in.)		Width (in.)		Length (in.)			
Minimum	Maximum	Minimum	Maximum	Minimum	Maximum (per finished width)		
					<=60.5"	60.6" - 74"	>74"
0.250	0.270	24	62.0	90	216	216	
0.271	0.500	24	62.0	90	350	350	
0.501	0.749	24	66.0	90	358	358	
0.750	1.500	24	84.5	90	358	358	358
1.501	2.000	24	84.5	90	358	358	358
2.001	2.999	24	84.5	90	344	344	206
3.000	4.000	24	60.5	90	334		

Please inquire about thicknesses greater than 4.000".

FLAT ROLLED PRODUCTS



SHEET & COIL CAPABILITIES

HEAT TREAT SHEET ALLOYS & TEMPERS						
2014	2014A	2024	2219	6061	7075	7475
T4	T4	T3	T31	T4	W	W
T6	T6	T4 (T-form)	T37	T41	T6	T61
	O-Temper	T81	T81	T6	T73	T761
	Special	T351	T87		T76	
	Inquiry	T361				
		T861				

Notes

All alloys available in -O and -F tempers.
 Available in Bare and Alclad.
 O-temper "Hi-Form" available up through 0.130".
 6061 available as Bare only.

HEAT TREAT SHEET DIMENSIONAL CAPABILITIES							
Thickness (in.)		Width (in.)				Length (in.)	
		Coil		Flat Sheet		Flat Sheet	
From	Through	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
0.008	0.029	12	60	36	60	90	240
0.030	0.130	12	60	36	62	60	300
0.131	0.249			36	62	60	225

Notes

All T Temper coil is tension leveled through .071" thick.
 Tempers T37, T87, T361 and T861 are available in flat sheet only 0.040" - 0.249".
 Alclad 2014 and 2219 special inquiry below 0.040".

HOT ROLLED TREAD SHEET & PLATE				
Thickness	Width		Length	
	Minimum	Maximum	Minimum	Maximum
Up to 0.250"	36.0	60.5	72.0	245.0
Over 0.250"	36.0	60.5	72.0	225.0

Notes

Gauges Available 0.125", 0.156", 0.188", 0.250", 0.375" and 0.500".
 Non-standard gauges subject to special availability.
 Pattern B 6061-F, O, T4, T6 (ASTM B632).

FLAT ROLLED PRODUCTS

ORDER WEIGHTS



MINIMUM ORDER WEIGHTS FOR STANDARD SIZES (lbs.)

Alloy	Coiled Sheet				Flat Sheet				Plate up to 2.999"				Plate 3" and over						
	Width				Width				Width				Thickness						
	<= 46.0"	46.01" - 49.00"	49.01" - 57.00"	57.01" - 63.00"	<= 46.0"	46.01" - 49.00"	49.01" - 57.00"	57.01" - 63.00"	<= 46.0"	46.01" - 49.00"	49.01" - 57.00"	57.01" - 63.00"	66.01" - 85.00"	3.00" - 4.99"	5.00" - 5.99"	6.00" - 6.99"	7.00" - 7.99"	8" and over	
2014 / 2014A	3,000	3,500	3,250	3,750	2,500	3,250	3,500	3,750	2,500	3,250	3,500	3,750	3,000	3,250	3,500	3,000	3,000	3,000	5,500
2024	3,000	3,500	4,000	4,000	2,750	3,250	3,500	3,750	2,750	3,000	3,250	3,500	3,000	3,250	3,500	3,000	3,000	3,000	5,500
2124																			5,500
2219	2,500	3,000	3,000	3,000	2,500	3,500	3,500	3,500	2,500	3,500	3,500	3,500	4,000	3,250	3,500	5,500	5,500	5,500	5,500
6061	3,750	4,500	4,500	4,500	3,500	4,250	4,250	5,000	4,500	5,000	5,000	5,000	5,000	5,000	5,000	8,000	8,000	9,000	10,000
7050									3,250	3,500	3,250	3,250	3,250	3,250	3,500	6,000	6,000	4,500	5,000
7075	3,250	3,250	3,250	4,000	2,750	3,250	3,250	3,750	3,000	3,000	3,250	3,250	3,250	3,000	3,500	6,000	6,000	5,000	5,000
7175									3,000	3,000	3,000	3,000	3,000	3,000	3,000	5,000	5,000	5,000	5,000
7475	2,500	3,500	3,500	3,500	2,500	3,000	3,000	3,250	2,750	3,000	3,000	3,000	3,000	3,000	3,000	5,000	5,000	5,000	5,000
6061 Tread Plate					3,750	4,500	4,500	5,000	3,750	4,500	4,500	5,000	5,000	4,500	5,000				

MINIMUM ORDER WEIGHTS FOR NON-STANDARD SIZES (lbs.)

Alloy	Coiled Sheet				Flat Sheet				Plate up to 2.999"				Plate 3" and over						
	Width				Width				Width				Thickness						
	<= 46.0"	46.01" - 49.00"	49.01" - 57.00"	57.01" - 63.00"	<= 46.0"	46.01" - 49.00"	49.01" - 57.00"	57.01" - 63.00"	<= 46.0"	46.01" - 49.00"	49.01" - 57.00"	57.01" - 63.00"	66.01" - 85.00"	3.00" - 4.99"	5.00" - 5.99"	6.00" - 6.99"	7.00" - 7.99"	8" and over	
2014 / 2014A	6,000	7,000	6,500	8,000	5,000	6,500	7,000	7,500	5,000	6,500	7,000	7,500	6,000	6,000	6,000	5,500	5,500	5,500	5,500
2024	6,000	7,000	8,000	8,000	5,500	6,500	7,000	7,500	5,500	6,000	6,500	7,000	6,000	6,000	6,000	5,500	5,500	5,500	5,500
2124									5,000	6,000	6,000	6,000	6,000	6,000	6,000	5,500	5,500	5,500	5,500
2219	5,000	6,000	6,000	6,000	5,000	7,000	7,000	7,000	5,500	6,000	6,500	7,000	8,000	6,500	6,500	5,500	5,500	5,500	5,500
6061	7,500	9,000	9,000	9,000	7,000	8,500	8,500	10,000	9,000	10,000	10,000	10,000	10,000	10,000	10,000	8,000	8,000	9,000	10,000
7050									6,500	7,000	7,000	7,500	6,500	6,500	6,000	6,000	4,500	5,000	5,000
7075	6,500	6,500	6,500	8,000	5,500	6,500	6,500	7,500	6,000	6,000	6,500	7,500	6,500	6,000	6,000	6,000	5,000	5,000	5,000
7175									6,000	6,000	6,000	6,000	6,000	6,000	5,000	5,000	5,000	5,000	5,000
7475	5,000	7,000	7,000	7,000	5,000	6,000	6,000	6,500	5,500	6,000	6,000	6,500	6,000	5,000	5,000	5,000	5,000	5,000	5,000
6061 Tread Plate					7,500	9,000	9,000	10,000	7,500	9,000	9,000	10,000	10,000	10,000	10,000				

AEROSPACE PLATE



SUMMARY OF SPECIFICATIONS

ALLOY	TEMPER	OWNER	SPECIFICATION	REV	SPEC. MAX THICKNESS	ALLOY	TEMPER	OWNER	SPECIFICATION	REV	SPEC. MAX THICKNESS
2014	O	SAE	AMS 4028	G	1.000	7050	F	Otto Fuchs	OFWN 4037	4	8.000
		ASTM	ASTM B 209	07	0.499			Airbus	AIMS 03-02-022	6	7.874
	T651	SAE	AMS 4029	K	4.000		SAE	AMS 4050	H	8.000	
		SAE	AMS-QQ-A-250/3		4.000		Aerospatiale	ASN-A3048	K	5.906	
		ASTM	ASTM B 209	07	4.000		Bombardier	BAMS 516-003	NC	8.000	
		Boeing	DMS 1580	A	3.000		Boeing	BMS 7-323D TYPE I	D	8.500	
Boeing	MMS 1112	6	3.000	Boeing	BMS 7-323D TYPE III		D	8.500			
2014A	T651	BSI	BS L. 93	2	5.512		T7451	Cessna	CMMP 025	R	8.000
2024	O	SAE	AMS 4035	K	1.750		Boeing	DMS 2233	G	6.000	
		SAE	AMS-QQ-A-250/4	A	1.750		Boeing	DMS 2459	C	8.000	
		ASTM	ASTM B 209	07	0.499		Eclipse	EAC MS1004	E	8.000	
	T351	Airbus	ABM 1-1005	1	4.000		Eclipse	EAC MS1005	E	8.000	
		French National	AIR 9048-630	1	3.150		Lockheed	LMA-M7050B	C	8.000	
		SAE	AMS 4037	N	4.000		Embraer	MEP 02-014	L	8.500	
		SAE	AMS-QQ-A-250/4	A	4.000		Boeing	MMS 1420	G	6.000	
		Aerospatiale	ASN-A3011	K	3.937		German Aero	WL 3.4144	1	5.906	
		ASTM	ASTM B 209	07	4.000		T7651	Airbus	ABM 3-1029	5	4.724
		Cessna	CMMP 025	R	4.000			SAE	AMS 4201	E	3.000
		European	EN 2419	P2	3.150	Bombardier		BAMS 516-001	NC	3.000	
	BSI	BS L. 97	2	5.512	Cessna	CMMP 025		R	5.000		
	German Aerospace	WL 3.1354	1	5.512	Boeing	DMS 2233		G	3.000		
	Eclipse	EAC MS MP 0162	E	6.000							
T851	SAE	AMS-QQ-A-250/4	A	1.499	O	SAE	AMS 4044	K	2.000		
	ASTM	ASTM B 209	07	1.499		SAE	AMS-QQ-A-250/12		2.000		
	Northrop Grumman	GM2007	C	6.000		ASTM	ASTM B 209	07	2.000		
2124	T851	SAE	AMS 4101	C		6.000	McDonnell Douglas	STM0815-01	A	4.000	
		SAE	AMS-QQ-A-250/29			6.000	T651	SAE	AMS 4045	J	4.000
		Eclipse	EAC MS1002	F		6.000		SAE	AMS-QQ-A-250/12		4.000
		Eclipse	EAC MS1003	E	6.000	ASTM		ASTM B 209	07	4.000	
		Lockheed	FMS-3002	A	6.000	Cessna		CMMP 025	R	3.000	
		Lockheed	FMS-3008	B	6.000	7075	Aerospatiale	AIR 9048-690	1	3.937	
		Boeing	MB0170-072	F	6.000		SAE	AMS 4078	G	4.000	
		Boeing	MMS 149	L	6.000		SAE	AMS-QQ-A-250/12		4.000	
2219	O	SAE	AMS 4031	G	2.000		T7351	ASTM	ASTM B 209	07	4.000
		SAE	AMS-QQ-A-250/30		2.000			Cessna	CMMP 025	R	5.000
		ASTM	ASTM B 209	07	2.000			Eclipse	EAC MS1011	E	4.000
	T37	SAE	AMS-QQ-A-250/30		5.000			Boeing	MMS 159	N	4.000
		ASTM	ASTM B 209	07	5.000		Fokker	TH 5.316/5	15	4.724	
	T851	SAE	AMS 4295	B	6.000	German Aero	WL 3.4364	1	3.934		
		SAE	AMS-QQ-A-250/30		6.000	T7651	SAE	AMS-QQ-A-250/24	A	2.000	
	ASTM	ASTM B 209	07	6.000	SAE		AMS-QQ-A-250/25	A	1.000		
	ASTM	ASTM B 209	07	5.000	ASTM		ASTM B 209	07	2.000		
6061	O	SAE	AMS 4025	K	3.000	7175	T7351	Airbus	AIMS 03-02-008	4	3.937
		SAE	AMS-QQ-A-250/11		3.000			Aerospatiale	ASN-A3050	L	3.937
		ASTM	ASTM B 209	07	3.000	T451	SAE	AMS 4026	L	3.000	
	SAE	AMS 4026	L	3.000	SAE		AMS-QQ-A-250/11		3.000		
	ASME	ASME SB 209	2004	3.000	ASTM		ASTM B 209	07	3.000		
	ASTM	ASTM B 209	07	3.000	T651		SAE	AMS 4027	M	6.000	
	SAE	AMS 4027	M	6.000			SAE	AMS-QQ-A-250/11		6.000	
	SAE	AMS-QQ-A-250/11		6.000			ASME	ASME SB 209	2004	6.000	
	ASME	ASME SB 209	2004	6.000			ASTM	ASTM B 209	07	6.000	
	ASTM	ASTM B 209	07	6.000			US Gov't.	MIL-DTL-46027	J	6.000	
	US Gov't.	MIL-DTL-46027	J	6.000			BAe Systems	OAS-STD-9520	A	1.500	
	BAe Systems	OAS-STD-9520	A	1.500			BAe Systems	OAS-STD-9521	A	1.001	
	BAe Systems	OAS-STD-9521	A	1.001			BAe Systems	OAS-STD-9522	A	0.750	
	BAe Systems	OAS-STD-9522	A	0.750			BAe Systems	OAS-STD-9523	A	2.000	
	BAe Systems	OAS-STD-9523	A	2.000							

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AEROSPACE PLATE



SUMMARY OF SPECIFICATIONS

ALLOY	TEMPER	OWNER	SPECIFICATION	REV	SPEC. MAX THICKNESS	
7475	O	Lockheed Martin	5PTM7T13	C	0.499	
	O1	Agusta	199-19-005	B	7.874	
	OP	Boeing	DMS 2184	L	1.500	
	T7351	SAE	AMS 4202		D	4.000
		Bombardier	BAMS 516-002		NC	4.000
		Cessna	CMMP 025		R	4.000
		Boeing	DMS 2184		L	4.000
		Eclipse	EAC MS1006		E	4.000
		Lockheed	FMS-3004		C	4.000
		Embraer	MEP 02-013 - std		P	4.000
		Embraer	MEP 02-013 - Type I		P	4.000
		Embraer	MEP 02-013 - Type II		P	4.000
		Embraer	MEP 02-013 - Type III		P	4.000
	German Aero	WL 3.4384		1	3.937	
	T7651	SAE	AMS 4089		D	1.500
		Boeing	DMS 2184		L	1.500
	USI	SAE	AMS STD 2154 CL A			All
Boeing (All)		BSS 7055 CL A		A	All	
Northrop Grumman		GSS 16100		G	All	
ASTM		ASTM B594 CL A		6	All	
Boeing		BAC5439		H	All	
Boeing		PS21211		K	All	
Cessna		CST1006		C	All	
McDonnell Douglas	DPS4713		AH	All		

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AEROSPACE PLATE



SPECIFICATIONS BY ALLOY

ALLOY	TEMPER	SPECIFICATION	ALLOY	TEMPER	SPECIFICATION
2014	O	AMS4028	6061	O	AMS4025
		ASTMB209			AMS4027
	T651	AMS4029			AMSQA25011
		AMSQA2503			ASMESB209
		ASTMB209			ASTMB209
		DMS1580			AMS4026
MMS1112	AMSQA25011				
2014A	T4	EN2395		T4	ASMESB209
	T651	L156			ASTMB209
2024	O	L93		T451	AMS4026
		AMS4035			AMSQA25011
		AMS4040			ASMESB209
		AMSQA2504	ASTMB209		
		AMSQA2505	ASTMB632		
		ASTMB209	AMS4027		
	T3	T6	AMS4041	T651	AMS4078
			AMSQA2505		AMSQA25011
			ASTMB209		ASMESB209
			ABM11005		ASTMB209
			AIR9048630		EN10204
			AMS4037		OFWN4037
	T351	T7451	AMS4041	7050	AIMS302000
			AMSQA2504		AIMS302022
			AMSQA2505		AMS4050
			ASNA3011		ASNA3048
			ASTMB209		BAMS516003
			CMMP025		BMS7323TY1
			DAN422		BMS7323TY3
			EN2419		CMMP025
			L97		DAN422
			WL31354		DMS2233
			WL31364		DMS2459
			T851		T7651	AMSQA2504	EACMS1004
ASTMB209	EACMS1005				
GM2007	LMAM7050				
2124	F	AMSQA25029	MEP02014		
		MMS149	MMS1420		
	T851	T7651	AMS4101	WL34144	
			AMSQA25029	ABM31029	
			EACMS1002	AMS4201	
			EACMS1003	BAMS516001	
			FMS3002	CMMP025	
			FMS3008	DMS2233	
MB0170072	EACMSMP162				
MMS149					
2219	O	AMS4031			
		AMSQA25030			
		ASTMB209			
	T37	T851	AMSQA25030		
			ASTMB209		
	T851	T87	AMS4295		
			AMSQA25030		
			ASTMB209		
	T87		AMSQA25030		
			ASTMB209		

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SPECIFICATIONS BY ALLOY

ALLOY	TEMPER	SPECIFICATION
7075	O	AMS4044
		AMS4048
		AMSQA25012
		AMSQA25013
		ASTMB209
		STM081501
	T651	AMS4045
		AMS4048
		AMS4049
		AMS4078
		AMSQA25012
		AMSQA25013
		ASTMB209
		CMMP025
		MMS159
		T7351	AIR9048690
	AMS4078	
	AMSQA25012	
	ASTMB209	
	CMMP025	
	DAN422	
	EACMS1011	
	EN10204	
	MMS159	
	TH53165	
	WL34364	
	T7651		AMSQA25024
		AMSQA25025
		ASTMB209
	7175	T7351	AIMS302000
AIMS302008		
ASNA3050		
EN10204		
IGC0432105		
7475	O	5PTM7T13
	O1	19919005
	OP	DMS2184
	T7351	AMS4202
		BAMS516002
		CMMP025
		DAN422
		DIN29546
		DMS2184
		EACMS1006
		FMS3004
		MEP02013
		WL34384
	T7651	AMS4089
		DMS2184

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AEROSPACE FLAT SHEET



SUMMARY OF SPECIFICATIONS

ALLOY	TEMPER	OWNER	SPECIFICATION	REV	DESCRIPTION	ALLOY	TEMPER	OWNER	SPECIFICATION	REV	DESCRIPTION
2014	O	SAE	AMS-QQ-A-250/3		Alclad 2014 Sheet & Plate	2024	F	British Aerospace	BAEM 1010	2	Alclad 2024-T42 (O,F) Sheet
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys			BSI	BS L 110	1	Alclad 2024-F Sheet
	T3	SAE	AMS-QQ-A-250/3		Alclad 2014 Sheet & Plate			Dassault	CR 1.1.0.55	C	Bare & Alclad Sheet
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys			German Aerospace	DAN 424	1288	German Sheet Requirements
		Boeing	D6-83818		Boeing Polished Skin Standards			Hawker Siddeley	S07-1010	1	Alclad 2024-F & O Temper Sheet
		Boeing	DMS 2130	A	Premium Polished Skin Quality			German Aerospace	WL 3.1364	1	Alclad 2024 Sheet & Plate
		Boeing	DMS 2174	B	MRS Requirements			Airbus	ABM 1-6015	2	Bare 2024-T3 Sheet
		SAE	AMS 4029	K	Bare 2014-T6 Sheet & T651 Plate			Airbus	ABM 1-7068	1	Alclad 2024-T42 Close Tol. Sheet
	T6	SAE	AMS-QQ-A-250/3		Alclad 2014 Sheet & Plate			Airbus	AIMS 03-04-000	3	Alum. Sheet & Plate to 12 mm.
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys			Airbus	AIMS 03-04-010	5	Alclad 2024-T42 Sheet
2014A	F	Boeing	BAC M 196	A	Alclad 2014A-F Sheet		French Standards	AIR 9048-100	1	Bare 2024-O Sheet	
		BSI	BS L 156		Bare 2014A-T4 Sheet		French Standards	AIR 9048-130	1	Alclad 2024-O Sheet	
		BSI	BS L 158		Bare 2014A-T4 Close Tol. Sheet		SAE	AMS 4035	K	Bare 2024-O Sheet & Plate	
		BSI	BS L 164		Alclad 2014A-T4 Sheet		SAE	AMS 4040	M	Alclad 2024-O Sheet & Plate	
		BSI	BS L166		Alclad 2014A-T4 Close Tol. Sheet		SAE	AMS 4274	A	Alclad 2024-O Hi-Form Sheet	
		British Standards	EN 2088	2005	Alclad 2014A-T4 Sheet		SAE	AMS 4276	A	Bare 2024-O Hi-Form Sheet	
		British Standards	EN 2089	2005	Bare 2014A-T6/T62 Sheet		SAE	AMS-QQ-A-250/4	A	Bare 2024 Sheet & Plate	
		British Standards	EN 2395	2005	Bare 2014A-T4 Sheet		SAE	AMS-QQ-A-250/5	A	Alclad 2024 Sheet & Plate	
		T3	BSI	BS L 163			Alclad 2014A-T3 Sheet	Aerospatiale	ASN-A3042	E	Alclad 2024-T42 Sheet
			Airbus	ABM 1-6013	1		Bare 2014A-T4 Close Tol. Sheet	ASTM	ASTM B 209	07	All Sheet & Plate Alloys
	T4	Airbus	ABM 1-7018	1	Alclad 2014A-T4 Close Tol. Sheet		British Aerospace	BAEM 1010	2	Alclad 2024-T42 (O,F) Sheet	
		French Standards	AIR 9048-020	1	Bare 2014A-T4 Sheet		British Aerospace	BAEM 4075	1	Alclad 2024-T4 Sheet	
		BSI	BS L 156		Bare 2014A-T4 Sheet		Bombardier	BAMS 516-010	NC	Bare & Alclad 2024-O Hi-Form	
		BSI	BS L 158		Bare 2014A-T4 Close Tol. Sheet		Boeing	BMS 7-305	A	Alclad 2024-O Hi-Form Sheet	
		BSI	BS L 164		Alclad 2014A-T4 Sheet	BSI	BS L 109	1	Alclad 2024-T3 Sheet		
		BSI	BS L166		Alclad 2014A-T4 Close Tol. Sheet	BSI	BS L 110	1	Alclad 2024-F Sheet		
		British Standards	EN 10204-3.1	2004	Test Report Specification	Cessna	CMMF 021	A	Hi-Form O-Temper Sheet		
		British Standards	EN 2087	2005	Alclad 2014A-T6 Sheet	Cessna	CMMF 025	R	Metal Procurement Requirements		
		British Standards	EN 2088	2005	Alclad 2014A-T4 Sheet	Dassault	CR 1.1.0.55	C	Bare & Alclad Sheet		
		British Standards	EN 2089	2005	Bare 2014A-T6/T62 Sheet	Boeing	D6-83818		Boeing Polished Skin Standards		
		British Standards	EN 2395	2005	Bare 2014A-T4 Sheet	German Aerospace	DAN 34	0189	Specification for Chem. Milling		
		British Aerospace	MM 0551	1	Alclad 2014A-T4/T42 Close Tol.	German Aerospace	DAN 424	1288	German Sheet Requirements		
		British Aerospace	MM 0552	3	Alclad 2014A-T6/T62 Close Tol.	German Standards	DIN 29 546	13	German Aluminum Specification		
		British Aerospace	MM 0553	2	Alclad 2014A-T4/T42 Close Tol.	Boeing	DMS 1949	D	Premium Skin Quality		
		British Aerospace	MM 0554	1	Alclad 2014A-T6/T62 Close Tol.	Boeing	DMS 2130	A	Premium Polished Skin Quality		
		Hawker Siddeley	S07-1007	1	Alclad 2014A-T4 Sheet	Boeing	DMS 2411		Hi-Form 6061, 2XXX & 7XXX		
		Hawker Siddeley	S07-1020	1	Bare 2014A-T4 Sheet	British Standards	EN 10204-3.1	2004	Test Report Specification		
		T6	Airbus	ABM 1-6014	1	Bare 2014A-T6 Close Tol. Sheet	Embraer	MEP 02-015	B	Embraer Alclad 2024-O Hi-Form	
Airbus	ABM 1-7019		1	Alclad 2014A-T6 Close Tol. Sheet	Rohr	RMS 171		Bare 2024- Hi-Form Sheet			
BSI	BS L 157			Bare 2014A-T6 Sheet	Hawker Siddeley	S07-1010	1	Alclad 2024-F & O Temper Sheet			
BSI	BS L 159			Bare 2014A-T6 Close Tol. Sheet	Fokker	TH 5.322	21	Alclad 2024 Sheet			
BSI	BS L 165			Alclad 2014A-T6 Sheet	German Aerospace	WL 3.1354	1	Bare 2024 Sheet & Plate			
BSI	BS L 167			Alclad 2014A-T6 Close Tol. Sheet	German Aerospace	WL 3.1364	1	Alclad 2024 Sheet & Plate			
British Standards	EN 10204-3.1		2004	Test Report Specification	Bell	299-947-040	N	2024-T3 Sheet for Rotor Blades			
British Standards	EN 2087		2005	Alclad 2014A-T6 Sheet	Bell	299-947-157	E	MRS for Bell Helicopter			
British Standards	EN 2089		2005	Bare 2014A-T6/T62 Sheet	Airbus	ABM 1-6015	2	Bare 2024-T3 Sheet			
British Aerospace	MM 0552		3	Alclad 2014A-T6/T62 Close Tol.	Airbus	ABM 1-7067	1	Alclad 2024-T3 Close Tol. Sheet			
British Aerospace	MM 0554		1	Alclad 2014A-T6/T62 Close Tol.	Airbus	AIMS 03-04-000	3	Alum. Sheet & Plate to 12 mm.			
Hawker Siddeley	S07-1008		1	Alclad 2014A-T6 Sheet	Airbus	AIMS 03-04-009	2	Alclad 2024-T351 Sheet			
Hawker Siddeley	S07-1021	1	Bare 2014A-T6 Sheet	Airbus	AIMS 03-04-014	2	Alclad 2024-T3 Sheet				
2024	F	Airbus	ABM 1-7068	1	Alclad 2024-T42 Close Tol. Sheet	T3	French Standards	AIR 9048-110	1	Bare 2024-T3 Sheet	
		Airbus	AIMS 03-04-000	3	Alum. Sheet & Plate to 12 mm.		French Standards	AIR 9048-140	1	Alclad 2024-T3 Sheet	
		Airbus	AIMS 03-04-010	5	Alclad 2024-T42 Sheet		SAE	AMS 4037	N	Bare 2024-T3/T351 Sheet & Plate	
		French Standards	AIR 9048-130	1	Alclad 2024-O Sheet		SAE	AMS 4041	Q	Alclad 2024-T3/T351 Sheet & Plate	
		SAE	AMS 4040	M	Alclad 2024-O Sheet & Plate		SAE	AMS 4101	C	Bare 2124-T851 Plate	
		SAE	AMS-QQ-A-250/5	A	Alclad 2024 Sheet & Plate		SAE	AMS-QQ-A-250/4	A	Bare 2024 Sheet & Plate	
		Aerospatiale	ASN-A3042	E	Alclad 2024-T42 Sheet		SAE	AMS-QQ-A-250/5	A	Alclad 2024 Sheet & Plate	

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AEROSPACE FLAT SHEET



SUMMARY OF SPECIFICATIONS

ALLOY	TEMPER	OWNER	SPECIFICATION	REV	DESCRIPTION	ALLOY	TEMPER	OWNER	SPECIFICATION	REV	DESCRIPTION	
2024	T3	Aerospatiale	ASN-A3010	H	Bare 2023-T3 Sheet	2024	T4	Eclipse	E410-MS-0006	A	Eclipse Bare 2024-T4 (T-Form)	
		Aerospatiale	ASN-A3012	M	Alclad 2024-T3 Sheet			T81	SAE	AMS-QQ-A-250/4	A	Bare 2024 Sheet & Plate
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys				SAE	AMS-QQ-A-250/5	A	Alclad 2024 Sheet & Plate
		British Aerospace	BAEM 1009	2	Alclad 2024-T3 Sheet				ASTM	ASTM B 209	07	All Sheet & Plate Alloys
		British Aerospace	BAEM 4006	1	Alclad 2024-T3 Sheet				Boeing	D6-83818		Boeing Polished Skin Standards
		Bombardier	BATS 2505	NC	MRS Testing Specification				Boeing	DMS 2130	A	Premium Polished Skin Quality
		BSI	BS 25359	3	Raytheon MRS Sheet				Boeing	DMS 2174	B	MRS Requirements
		BSI	BS L 109	1	Alclad 2024-T3 Sheet				Rohr	RMS 145	C	Rohr Chemical Milling (MRS)
		Cessna	CCM-41	C	Alclad 2024-T3 Sheet		O		SAE	AMS 4031	G	Bare 2219-O Sheet & Plate
		Cessna	CMMP 025	R	Metal Procurement Requirements			SAE	AMS 4096	B	Alclad 2219-O Sheet & Plate	
		Dassault	CR 1.1.0.55	C	Bare & Alclad Sheet			SAE	AMS 4295	B	Bare 2219 Sheet & Plate	
		Dassault	CR 1.1.0.8	J	Alclad 2024-F, H111, T3 Sheet			SAE	AMS-QQ-A-250/30		Bare 2219 Sheet & Plate	
		Boeing	D6-83818		Polished Skin Standards			ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
		German Aerospace	DAN 424	1288	German Sheet Requirements			Boeing	BMS 7-110	F	Alclad 2219 Sheet & Plate	
		German Standards	DIN 29 546	13	German Aluminum Specification			Dassault	CR 1.1.0.39	E	Chemical Milling Requirements	
		Boeing	DMS 1949	D	Premium Skin Quality			Dassault	CR 1.1.0.55	C	Bare & Alclad Sheet	
		Boeing	DMS 2130	A	Premium Polished Skin Quality			Dassault	CR 1.1.0.82		Alclad 2219-O Sheet	
		Boeing	DMS 2174	B	MRS Requirements			Dassault	CR1.1.081		Bare 2219 Sheet	
		Eclipse	EAC MS1013	A	Bare 2024-T3 Stretched Sheet			Boeing	D6-83818		Boeing Polished Skin Standards	
		British Standards	EN 10204-3.1	2004	Test Report Specification			Boeing	DMS 1719	D	Alclad 2219 Sheet & Plate	
		British Standards	EN 2090	2005	Alclad 2024-T3 Sheet			Rohr	RMS 162		Bare 2219-O Hi-Form Sheet	
		Lockheed	FMS-3022	A	MRS Sheet			T31	Airbus	AIMS 03-04-000	3	Alum. Sheet & Plate to 12 mm.
		Embraer	MEP 02-015	B	Embraer Alclad 2024-O Hi-Form				Airbus	AIMS 03-04-041	1	Bare 2219-T31/T81 Sheet
		Rohr	RMS 145	C	Rohr Chemical Milling (MRS)				SAE	AMS 4095	C	Alclad 2219-T3/T351 Sheet & Plate
		Hawker Siddeley	S07-1009	1	Alclad 2024 Close Tol. Sheet				SAE	AMS-QQ-A-250/30		Bare 2219 Sheet & Plate
		Hawker Siddeley	S07-1029	2	Bare 2024-T3 Sheet				ASTM	ASTM B 209	07	All Sheet & Plate Alloys
		Fokker	TH 5.312	22	2024 Sheet & Plate				Boeing	BMS 7-110	F	Alclad 2219 Sheet & Plate
		Fokker	TH 5.322	21	Alclad 2024 Sheet				Boeing	DMS 1719	D	Alclad 2219 Sheet & Plate
		German Aerospace	WL 3.1354	1	Bare 2024 Sheet & Plate				Boeing	DMS 2174	B	MRS Requirements
		German Aerospace	WL 3.1364	1	Alclad 2024 Sheet & Plate				Rohr	RMS 145	C	Rohr Chemical Milling (MRS)
	Airbus	AIMS 03-04-000	3	Alum. Sheet & Plate to 12 mm.	Lockheed	STM07-101	E		Alclad 2219 Sheet			
	Airbus	AIMS 03-04-009	2	Alclad 2024-T351 Sheet	T81	SAE	AMS 4094		C	Alclad 2219-T81/T851 Sheet & Plate		
	French Standards	AIR 9048-120	1	Bare 2024-T351 Sheet		SAE	AMS-QQ-A-250/30			Bare 2219 Sheet & Plate		
	French Standards	AIR 9048-140	1	Alclad 2024-T3 Sheet		ASTM	ASTM B 209	07	All Sheet & Plate Alloys			
	SAE	AMS 4041	Q	Alclad 2024-T3/T351 Sheet & Plate		Boeing	BMS 7-110	F	Alclad 2219 Sheet & Plate			
	SAE	AMS-QQ-A-250/5	A	Alclad 2024 Sheet & Plate		Boeing	DMS 1719	D	Alclad 2219 Sheet & Plate			
	Aerospatiale	ASN-A3012	M	Alclad 2024-T3 Sheet		Boeing	DMS 2174	B	MRS Requirements			
	British Aerospace	BAEM 1009	2	Alclad 2024-T3 Sheet		Rohr	RMS 145	C	Rohr Chemical Milling (MRS)			
	BSI	BS L 109	1	Alclad 2024-T3 Sheet		Lockheed	STM07-101	E	Alclad 2219 Sheet			
	German Aerospace	DAN 34	0189	Specification for Chem. Milling		T87	SAE	AMS-QQ-A-250/30		Bare 2219 Sheet & Plate		
	German Aerospace	DAN 424	1288	German Sheet Requirements			ASTM	ASTM B 209	07	All Sheet & Plate Alloys		
	German Standards	DIN 29 546	13	German Aluminum Specification	6061	O	H111	Aerospatiale	ASN-A3001	D	Bare 6061-T42 Sheet (O & H111)	
	British Standards	EN 10204-3.1	2004	Test Report Specification			Airbus	AIMS 03-04-000	3	Alum. Sheet & Plate to 12 mm.		
	Hawker Siddeley	S07-1009	1	Alclad 2024 Close Tol. Sheet			Airbus	AIMS 03-04-042	2	Bare 6061-T62 Sheet		
	German Aerospace	WL 3.1354	1	Bare 2024 Sheet & Plate			SAE	AMS 4025	L	Bare 6061-O Sheet & Plate		
	German Aerospace	WL 3.1364	1	Alclad 2024 Sheet & Plate			SAE	AMS-QQ-A-250/11	A	Bare 6061 Sheet & Plate		
	Airbus	AIMS 03-04-000	3	Alum. Sheet & Plate to 12 mm.			Aerospatiale	ASN-A3001	D	Bare 6061-T42 Sheet (O & H111)		
	Airbus	AIMS 03-04-024	2	Alclad 2024-T4 (T-Form) Sheet			ASTM	ASTM B 209	07	All Sheet & Plate Alloys		
	Airbus	AIMS 03-04-044	2	Alclad 2024-T4 (T62) Sheet			Boeing	BMS 7-312		Bare 6061-O Hi-Form Sheet		
	SAE	AMS 4279	B	Alclad 2024-T4 (T-Form) Sheet			Cessna	CMMP 021	A	High Form O-Temper Sheet		
	SAE	AMS 4297	A	Bare 2024-T4 (T-Form) Sheet			Cessna	CMMP 025	R	Metal Procurement Requirements		
	SAE	AMS-QQ-A-250/4	A	Bare 2024 Sheet & Plate			German Aerospace	DAN 424	1288	German Sheet Requirements		
	SAE	AMS-QQ-A-250/5	A	Alclad 2024 Sheet & Plate			Boeing	DMS 2411		Hi-Form 6061, 2XXX & 7XXX		
	ASTM	ASTM B 209	07	All Sheet & Plate Alloys			German Aerospace	WL 3.3214	1	6061 Sheet & Plate		
	Boeing	BMS 7-363		Bare & Alclad 2024-T4 (T-Form)			O1	SAE	AMS 4025	L	Bare 6061-O Sheet & Plate	
	Cessna	CMMP 020		Bare & Alclad 2024-T4 (T-Form)				SAE	AMS-QQ-A-250/11	A	Bare 6061 Sheet & Plate	
	Cessna	CMMP 025	R	Metal Procurement Requirements				ASTM	ASTM B 209	07	All Sheet & Plate Alloys	

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AEROSPACE FLAT SHEET



SUMMARY OF SPECIFICATIONS

ALLOY	TEMPER	OWNER	SPECIFICATION	REV	DESCRIPTION	
6061	T4	Airbus	ABM 2-6027	2	6061-T4 Sheet	
		Airbus	AIMS 03-04-000	3	Alum. Sheet & Plate to 12 mm.	
		Airbus	AIMS 03-04-042	2	Bare 6061-T62 Sheet	
		French Standards	AIR 9048-220	1	Bare 6061-T4 Sheet	
		SAE	AMS 4026	M	Bare 6061-T4/T451 Sheet & Plate	
		SAE	AMS-QQ-A-250/11	A	Bare 6061 Sheet & Plate	
		ASME	ASME SB 209	2004	Boiler Plate Spec. (6061)	
		Aerospatiale	ASN-A3046	D	Bare 6061-T4 Sheet	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
		Boeing	BAC M 120	C	6061-T4 & T42 Sheet	
		Cessna	CMMP 025	R	Metal Procurement Requirements	
		Dassault	CR 1.1.0.55	C	Bare & Alclad Sheet	
		German Aerospace	DAN 424	1288	German Sheet Requirements	
		German Standards	DIN 29 546	13	German Aluminum Specification	
		T6	British Standards	EN 10204-3.1	2004	Test Report Specification
	British Standards		EN 2694	2005	Bare 6061 Sheet	
	British Standards		EN 3341	2005	Bare 6061-T4/T42 Sheet	
	German Aerospace		WL 3.3214	1	6061 Sheet & Plate	
	French Standards		AIR 9048-240	1	Bare 6061-T6 Sheet	
	SAE		AMS 4027	N	Bare 6061-T6/T651 Sheet & Plate	
	SAE		AMS-QQ-A-250/11	A	Bare 6061 Sheet & Plate	
	ASME		ASME SB 209	2004	Boiler Plate Spec. (6061)	
	Aerospatiale		ASN-A3047	C	Bare 6061-T6 Sheet	
	ASTM		ASTM B 209	07	All Sheet & Plate Alloys	
	ASTM		ASTM B 632	02	Bare 6061 Tread Sheet & Plate	
	German Aerospace		DAN 424	1288	German Sheet Requirements	
	German Standards		DIN 29 546	13	German Aluminum Specification	
	British Standards		EN 2694	2005	Bare 6061 Sheet	
	German Aerospace		WL 3.3214	1	6061 Sheet & Plate	
	T651	German Aerospace	DAN 424	1288	German Sheet Requirements	
		German Standards	DIN 29 546	13	German Aluminum Specification	
		German Aerospace	WL 3.3214	1	6061 Sheet & Plate	
	7075	F	SAE	AMS-QQ-A-250/12		Bare 7075 Sheet & Plate
			ASTM	ASTM B 209	07	All Sheet & Plate Alloys
			SAE	AMS 4044	L	Bare 7075-O Sheet & Plate
O		SAE	AMS 4048	M	Alclad 7075-O Sheet & Plate	
		SAE	AMS 4277	A	Bare 7075-O Hi-Form Sheet	
		SAE	AMS 4278	B	Alclad 7075-O Hi-Form Sheet	
		SAE	AMS-QQ-A-250/12		Bare 7075 Sheet & Plate	
		SAE	AMS-QQ-A-250/13		Alclad 7075 Sheet & Plate	
		SAE	AMS-QQ-A-250/5	A	Alclad 2024 Sheet & Plate	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
		Bombardier	BAMS 516-011	NC	Bare & Alclad 7075-O Hi-Form	
		Boeing	BMS 7-302	B	Alclad 7075-O Hi-Form	
		Boeing	BMS 7-305	A	2024-O Hi-Form Sheet	
		Cessna	CMMP 021	A	Hi-Form O-Temper Sheet	
		Cessna	CMMP 025	R	Metal Procurement Requirements	
		Boeing	D6-83818		Boeing Polished Skin Standards	
		German Aerospace	DAN 424	1288	German Sheet Requirements	
		Boeing	DMS 2130	A	Premium Polished Skin Quality	
Boeing		DMS 2411		Hi-Form 6061, 2XXX & 7XXX		
British Standards		EN 2092	2005	Alclad 7075-T6 Sheet		
Fokker		TH 5.324	16	Alclad 7075 Sheet		
German Aerospace		WL 3.4374	1	Alclad 7075 Sheet & Plate		
T6		Bell	299-947-157	E	MRS for Bell Helicopter	
		French Standards	AIR 9048-280	1	Alclad 7075-T6 Sheet	
		SAE	AMS 4045	J	Bare 7075-T6/T651 Sheet & Plate	
7075		T6	SAE	AMS 4049	K	Alclad 7075-T6/T651 Sheet & Plate
			SAE	AMS-QQ-A-250/12		Bare 7075 Sheet & Plate
			SAE	AMS-QQ-A-250/13		Alclad 7075 Sheet & Plate
			Aerospatiale	ASN-A3051	D	Alclad 7075-T6 Sheet
			ASTM	ASTM B 209	07	All Sheet & Plate Alloys
			Bombardier	BATS 2505	NC	MRS Testing Specification
			Cessna	CMMP 025	R	Metal Procurement Requirements
			Boeing	D6-83818		Boeing Polished Skin Standards
			German Aerospace	DAN 424	1288	German Sheet Requirements
			German Standards	DIN 29 546	13	German Aluminum Specification
	Boeing		DMS 1949	D	Premium Skin Quality	
	Boeing		DMS 2174	B	MRS Requirements	
	British Standards		EN 2092	2005	Alclad 7075-T6 Sheet	
	Fokker		TH 5.324	16	Alclad 7075 Sheet	
	German Aerospace		WL 3.4374	1	Alclad 7075 Sheet & Plate	
	T73	SAE	AMS-QQ-A-250/12		Bare 7075 Sheet & Plate	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
		Cessna	CMMP 025	R	Metal Procurement Requirements	
	T76	Boeing	DMS 2174	B	MRS Requirements	
		SAE	AMS-QQ-A-250/24	A	Bare 7075-T76/T7651 Sheet & Plate	
		SAE	AMS-QQ-A-250/25	A	Alclad 7075-T76/T7651 Sheet & Plate	
	F	ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
		German Aerospace	DAN 424	1288	German Sheet Requirements	
		British Standards	EN 3332	2005	Alclad 7475-T762 Sheet	
		British Standards	EN 3333	2005	Bare 7475-T762 Sheet	
		O	German Aerospace	DAN 424	1288	German Sheet Requirements
			Boeing	DMS 2234	A	Alclad 7475 Sheet
			Boeing	DMS 2281		Bare 7475 Sheet
		British Standards	EN 3332	2005	Alclad 7475-T762 Sheet	
		British Standards	EN 3333	2005	Bare 7475-T762 Sheet	
		Embraer	MEP 02-012	G	Embraer Bare & Alclad 7475 Sheet	
		T16	SAE	AMS 4207	B	Alclad 7475-T61 Sheet
			Boeing	DMS 2234	A	Alclad 7475 Sheet
			French Standards	AIR 9048-290	1	Bare 7475-T761 Sheet
		T761	SAE	AMS 4085	C	Bare 7475-T761 Sheet
SAE			AMS 4100	D	Alclad 7475-T761 Sheet	
Bombardier	BATS 2505		NC	MRS Testing Specification		
Boeing	DMS 2174		B	MRS Requirements		
Boeing	DMS 2233		G	7050 Plate		
Boeing	DMS 2234		A	Alclad 7475 Sheet		
Boeing	DMS 2281			Bare 7475 Sheet		
British Standards	EN 2803		2005	Alclad 7475-T761 Sheet		
German Aerospace	WL 3.4377		1	Alclad 7475 Sheet		

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AEROSPACE COIL



SUMMARY OF SPECIFICATIONS

ALLOY	TEMPER	OWNER	SPECIFICATION	REV	DESCRIPTION	
2014	O	SAE	AMS-QQ-A-250/3		Alclad 2014 Sheet & Plate	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
	T3	SAE	AMS-QQ-A-250/3		Alclad 2014 Sheet & Plate	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
	T4	SAE	AMS-QQ-A-250/3		Alclad 2014 Sheet & Plate	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
	T6	SAE	AMS-QQ-A-250/3		Alclad 2014 Sheet & Plate	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
	2014A	F	Boeing	BAC M 196	A	Alclad 2014A-F Sheet
			BSI	BS L 164		Alclad 2014A-T4 Sheet
BSI			BS L166		Alclad 2014A-T4 Close Tol. Sheet	
T4		BSI	BS L 164		Alclad 2014A-T4 Sheet	
		BSI	BS L166		Alclad 2014A-T4 Close Tol. Sheet	
2024	F	SAE	AMS-QQ-A-250/5	A	Alclad 2024 Sheet & Plate	
		BSI	BS L 110	1	Alclad 2024-F Sheet	
	O	Airbus	AIMS 03-04-000	3	Alum. Sheet & Plate to 12 mm.	
		Airbus	AIMS 03-04-010	5	Alclad 2024-T42 Sheet	
		French National	AIR 9048-130	1	Alclad 2024-O Sheet	
		SAE	AMS 4035	K	Bare 2024-O Sheet & Plate	
		SAE	AMS 4040	M	Alclad 2024-O Sheet & Plate	
		SAE	AMS 4274	A	Alclad 2024-O Hi-Form Sheet	
		SAE	AMS 4276	A	Bare 2024-O Hi-Form Sheet	
		SAE	AMS-QQ-A-250/4	A	Bare 2024 Sheet & Plate	
		SAE	AMS-QQ-A-250/5	A	Alclad 2024 Sheet & Plate	
		Aerospatiale	ASN-A3042	E	Alclad 2024-T42 Sheet	
	O	ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
		British Aerospace	BAEM 4075	1	Alclad 2024-T4 Sheet	
		Boeing	BMS 7-305	A	Alclad 2024-O Hi-Form Sheet	
		BSI	BS L 110	1	Alclad 2024-F Sheet	
		Cessna	CMMP 021	A	Hi-Form O-Temper Sheet	
		Cessna	CMMP 025	R	Metal Procurement Requirements	
		German Aerospace	DAN 424	1288	German Sheet Requirements	
		Boeing	DMS 2411		Hi-Form 6061, 2XXX & 7XXX	
		Embraer	MEP 02-015	B	Embraer Alclad 2024-O Hi-Form	
		Piper Aircraft	PMS-M1101	P	Alclad 2024 Sheet & Plate	
	O	Rohr	RMS 171		Bare 2024- Hi-Form Sheet	
		Rohr	RMS 172		Alclad 2024-O Hi-Form Sheet	
		German Aero	WL 3.1364	1	Alclad 2024 Sheet & Plate	
		T3	Airbus	AIMS 03-04-000	3	Alum. Sheet & Plate to 12 mm.
			SAE	AMS 4037	N	Bare 2024-T3/T351 Sheet & Plate
			SAE	AMS 4041	Q	Alclad 2024-T3/T351 Sheet & Plate
			SAE	AMS-QQ-A-250/4	A	Bare 2024 Sheet & Plate
			SAE	AMS-QQ-A-250/5	A	Alclad 2024 Sheet & Plate
			ASTM	ASTM B 209	07	All Sheet & Plate Alloys
			Cessna	CMMP 025	R	Metal Procurement Requirements
	German Aerospace		DAN 424	1288	German Sheet Requirements	
	Fokker		TH 5.312	22	2024 Sheet & Plate	
	German Aero		WL 3.1354	1	Bare 2024 Sheet & Plate	
	T4	SAE	AMS 4297	A	Bare 2024-T4 (T-Form) Sheet	
		SAE	AMS-QQ-A-250/4	A	Bare 2024 Sheet & Plate	
	T81	SAE	AMS-QQ-A-250/4	A	Bare 2024 Sheet & Plate	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
	2219	O	SAE	AMS 4031	G	Bare 2219-O Sheet & Plate
			SAE	AMS 4096	B	Alclad 2219-O Sheet & Plate
			SAE	AMS-QQ-A-250/30		Bare 2219 Sheet & Plate
			ASTM	ASTM B 209	07	All Sheet & Plate Alloys
			Boeing	BMS 7-110	F	Alclad 2219 Sheet & Plate
	2014	O	Boeing	DMS 1719	D	Alclad 2219 Sheet & Plate
			McDonnell Douglas	STM07-101	E	Alclad 2219 Sheet
		T31	SAE	AMS 4095	C	Alclad 2219-T3/T351 Sheet & Plate
			SAE	AMS-QQ-A-250/30		Bare 2219 Sheet & Plate
			ASTM	ASTM B 209	07	All Sheet & Plate Alloys
			Boeing	BMS 7-110	F	Alclad 2219 Sheet & Plate
			Boeing	DMS 1719	D	Alclad 2219 Sheet & Plate
			McDonnell Douglas	STM07-101	E	Alclad 2219 Sheet
T81		SAE	AMS-QQ-A-250/30		Bare 2219 Sheet & Plate	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
	McDonnell Douglas	STM07-101	E	Alclad 2219 Sheet		
6061	O	SAE	AMS 4025	L	Bare 6061-O Sheet & Plate	
		SAE	AMS-QQ-A-250/11	A	Bare 6061 Sheet & Plate	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
		Boeing	BMS 7-312		Bare 6061-O Hi-Form Sheet	
		Cessna	CMMP 021	A	Hi-Form O-Temper Sheet	
	T4	Cessna	CMMP 025	R	Metal Procurement Requirements	
		Boeing	DMS 2411		Hi-Form 6061, 2XXX & 7XXX	
		SAE	AMS 4026	M	Bare 6061-T4/T451 Sheet & Plate	
		SAE	AMS-QQ-A-250/11	A	Bare 6061 Sheet & Plate	
		ASME	ASME SB 209	2004	Boiler Plate Spec. (6061)	
T6	ASTM	ASTM B 209	07	All Sheet & Plate Alloys		
	Cessna	CMMP 025	R	Metal Procurement Requirements		
	SAE	AMS 4027	N	Bare 6061-T6/T651 Sheet & Plate		
	SAE	AMS-QQ-A-250/11	A	Bare 6061 Sheet & Plate		
	ASME	ASME SB 209	2004	Boiler Plate Spec. (6061)		
7075	O	ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
		Cessna	CMMP 025	R	Metal Procurement Requirements	
		SAE	AMS 4044	L	Bare 7075-O Sheet & Plate	
		SAE	AMS 4048	M	Alclad 7075-O Sheet & Plate	
		SAE	AMS 4277	A	Bare 7075-O Hi-Form Sheet	
	T6	SAE	AMS 4278	B	Alclad 7075-O Hi-Form Sheet	
		SAE	AMS-QQ-A-250/12		Bare 7075 Sheet & Plate	
		SAE	AMS-QQ-A-250/13		Alclad 7075 Sheet & Plate	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
		British Aerospace	BAEM 4144	1	Alclad 7075-T6 & T62 Sheet	
7475	O	Bombardier	BAMS 516-011	NC	Bare & Alclad 7075-O Hi-Form	
		Boeing	BMS 7-302	B	Bare & Alclad 7075-O Hi-Form	
		Cessna	CMMP 021	A	Hi-Form O-Temper Sheet	
		Cessna	CMMP 025	R	Metal Procurement Requirements	
		Boeing	DMS 2411		Hi-Form 6061, 2XXX & 7XXX	
	T6	SAE	AMS 4045	J	Bare 7075-T6/T651 Sheet & Plate	
		SAE	AMS 4049	K	Alclad 7075-T6/T651 Sheet & Plate	
		SAE	AMS-QQ-A-250/12		Bare 7075 Sheet & Plate	
		SAE	AMS-QQ-A-250/13		Alclad 7075 Sheet & Plate	
		ASTM	ASTM B 209	07	All Sheet & Plate Alloys	
7475	O	Cessna	CMMP 025	R	Metal Procurement Requirements	
		Boeing	DMS 2234	A	Alclad 7475 Sheet	
		Boeing	DMS 2281		Bare 7475 Sheet	
	T761	Embraer	MEP 02-012	G	Embraer Bare & Alclad 7475 Sheet	
		Airbus	AIMS 03-04-000	3	Alum. Sheet & Plate to 12 mm.	
		Airbus	AIMS 03-04-046	2	Alclad 1-Side 7475-T761	

This list is not necessarily up to date. Kaiser Aluminum may not be approved to produce every item listed.

FLAT ROLLED PRODUCTS



REFERENCE

COMPONENTS OF HEAT TREAT ALCLAD SHEET & PLATE							
Designation	Component Alloys		Total Specified Thickness of Composite Product (in.)	Sides Clad	Cladding Thickness Per Side – % of Composite Thickness		
	Core	Cladding			Nominal	Minimum	Maximum
Alclad 2014 Sheet & Plate	2014	6003	Up thru 0.024	Both	10.0%	8.0%	
			0.025 - 0.039	Both	7.5%	6.0%	
			0.040 - 0.099	Both	5.0%	4.0%	
			0.100 and over	Both	2.5%	2.0%	3.0%
Alclad 2024 Sheet & Plate	2024	1230	Up thru 0.062	Both	5.0%	4.0%	
			0.063 and over	Both	2.5%	2.0%	3.0%
1.5% Alclad 2024 Sheet & Plate	2024	1230	0.188 and over	Both	1.5%	1.2%	3.0%
Alclad One Side 2024 Sheet & Plate	2024	1230	Up thru 0.062	One	5.0%	4.0%	
			0.063 and over	One	2.5%	2.0%	3.0%
1.5% Alclad One Side 2024 Sheet & Plate	2024	1230	0.188 and over	One	1.5%	1.2%	3.0%
Alclad 2219 Sheet & Plate	2219	7072	Up thru 0.039	Both	10.0%	8.0%	
			0.040 - 0.099	Both	5.0%	4.0%	
			0.100 and over	Both	2.5%	2.0%	3.0%
Alclad 6061 Sheet & Plate	6061	7072	All	Both	5.0%	4.0%	6.0%
Alclad 7075 Sheet & Plate	7075	7072	Up thru 0.062	Both	4.0%	3.2%	
			0.063 - 0.187	Both	2.5%	2.0%	
			0.188 and over	Both	1.5%	1.2%	3.0%
2.5% Alclad 7075 Sheet & Plate	7075	7072	0.188 and over	Both	2.5%	2.0%	4.0%
Alclad One Side 7075 Sheet & Plate	7075	7072	Up thru 0.062	One	4.0%	3.2%	
			0.063 - 0.187	One	2.5%	2.0%	
			0.188 and over	One	1.5%	1.2%	3.0%
2.5% Alclad One Side 7075 Sheet & Plate	7075	7072	0.188 and over	One	2.5%	2.0%	4.0%

Notes

This table does not include all clad products registered with the Aluminum Association.

Cladding composition is applicable only to the aluminum or aluminum alloy bonded to the alloy ingot or slab in preparation to processing the specified composite product. The composition of the cladding may be subsequently altered by diffusion between the core and cladding due to thermal treatment.

The average thickness per side as determined by averaging cladding thickness measurements taken at a magnification of 100 diameters on the cross-section of a transverse sample polished and etched for microscopic examination. Maximum cladding thickness is applicable for thicknesses of 0.500 in. and greater.

FLAT ROLLED PRODUCTS



REFERENCE

ESTIMATED SHEET & PLATE WEIGHT IN POUNDS										
Thickness (in.)	Weight (lbs./sq. ft.)	ESTIMATED WEIGHTS OF VARIOUS SHEET SIZES (based on a density of .100 lb./cu. in.)								
		24" x 72"	36" x 96"	36" x 120"	36" x 144"	48" x 96"	48" x 120"	48" x 144"	60" x 144"	60" x 180"
0.012	0.173	2.1	4.2	5.2	6.2	5.5	6.9	8.3	10.4	13.0
0.016	0.230	2.8	5.5	6.9	8.3	7.4	9.2	11.0	13.8	17.3
0.020	0.288	3.5	6.9	8.6	10.4	9.2	11.5	13.8	17.3	21.6
0.025	0.360	4.3	8.6	10.8	13.0	11.5	14.4	17.3	21.6	27.0
0.032	0.461	5.5	11.1	13.8	16.6	14.8	18.4	22.1	27.7	34.6
0.040	0.576	6.9	13.8	17.3	20.7	18.4	23.0	27.6	34.6	43.2
0.050	0.720	8.6	17.3	21.6	25.9	23.0	28.8	34.6	43.2	54.0
0.063	0.907	10.9	21.8	27.2	32.6	29.0	36.3	43.5	54.4	68.0
0.071	1.022	12.3	24.5	30.7	36.8	32.7	40.9	49.1	61.3	76.7
0.080	1.152	13.8	27.6	34.6	41.5	36.9	46.1	55.3	69.1	86.4
0.090	1.296	15.6	31.1	38.9	46.7	41.5	51.8	62.2	77.8	97.2
0.100	1.440	17.3	34.6	43.2	51.8	46.1	57.6	69.1	86.4	108.0
0.125	1.800	21.6	43.2	54.0	64.8	57.6	72.0	86.4	108.0	135.0
0.160	2.304	27.6	55.3	69.1	82.9	73.7	92.2	110.6	138.2	172.8
0.190	2.736	32.8	65.7	82.1	98.5	87.6	109.4	131.3	164.2	205.2
0.250	3.600	43.2	86.4	108.0	129.6	115.2	144.0	172.8	216.0	270.0
0.313	4.507	54.1	108.2	135.2	162.3	144.2	180.3	216.3	270.4	338.0
0.375	5.400	64.8	129.6	162.0	194.4	172.8	216.0	259.2	324.0	405.0
0.500	7.200	86.4	172.8	216.0	259.2	230.4	288.0	345.6	432.0	540.0
0.625	9.000	108.0	216.0	270.0	324.0	288.0	360.0	432.0	540.0	675.0
0.750	10.800	129.6	259.2	324.0	388.8	345.6	432.0	518.4	648.0	810.0
0.875	12.600	151.2	302.4	378.0	453.6	403.2	504.0	604.8	756.0	945.0
1.000	14.400	172.8	345.6	432.0	518.4	460.8	576.0	691.2	864.0	1,080.0
1.250	18.000	216.0	432.0	540.0	648.0	576.0	720.0	864.0	1,080.0	1,350.0
1.500	21.600	259.2	518.4	648.0	777.6	691.2	864.0	1,036.8	1,296.0	1,620.0
1.750	25.200	302.4	604.8	756.0	907.2	806.4	1,008.0	1,209.6	1,512.0	1,890.0
2.000	28.800	345.6	691.2	864.0	1,036.8	921.6	1,152.0	1,382.4	1,728.0	2,160.0
2.250	32.400	388.8	777.6	972.0	1,166.4	1,036.8	1,296.0	1,555.2	1,944.0	2,430.0
2.500	36.000	432.0	864.0	1,080.0	1,296.0	1,152.0	1,440.0	1,728.0	2,160.0	2,700.0
2.750	39.600	475.2	950.4	1,188.0	1,425.6	1,267.2	1,584.0	1,900.8	2,376.0	2,970.0
3.000	43.200	518.4	1,036.8	1,296.0	1,555.2	1,382.4	1,728.0	2,073.6	2,592.0	3,240.0
4.000	57.600	691.2	1,382.4	1,728.0	2,073.6	1,843.2	2,304.0	2,764.8	3,456.0	4,320.0
5.000	72.000	864.0	1,728.0	2,160.0	2,592.0	2,304.0	2,880.0	3,456.0	4,320.0	5,400.0
6.000	86.400	1,036.8	2,073.6	2,592.0	3,110.4	2,764.8	3,456.0	4,147.2	5,184.0	6,480.0
7.000	100.800	1,209.6	2,419.2	3,024.0	3,628.8	3,225.6	4,032.0	4,838.4	6,048.0	7,560.0
8.000	115.200	1,382.4	2,764.8	3,456.0	4,147.2	3,686.4	4,608.0	5,529.6	6,912.0	8,640.0
9.000	129.600	1,555.2	3,110.4	3,888.0	4,665.6	4,147.2	5,184.0	6,220.8	7,776.0	9,720.0
10.000	144.000	1,728.0	3,456.0	4,320.0	5,184.0	4,608.0	5,760.0	6,912.0	8,640.0	10,800.0

TABLE 7.2 Mechanical Property Limits—Heat-Treatable Alloys ① ⑭

ALLOY AND TEMPER	SPECIFIED THICKNESS ② in.	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ③
		ULTIMATE		YIELD		
		min.	max.	min.	max.	
2014						
2014-O Sheet and plate	0.020–0.499	..	32.0	..	16.0	16
	0.500–1.000	..	32.0	..	..	10
2014-T3 Flat Sheet	0.020–0.039	59.0	..	35.0	..	14
	0.040–0.249	59.0	..	36.0	..	14
2014-T4 Coiled Sheet	0.020–0.249	59.0	..	35.0	..	14
2014-T451 ⑦ ⑧ Plate	0.250–0.499	58.0	..	36.0	..	14
	0.500–1.000	58.0	..	36.0	..	14
	1.001–2.000	58.0	..	36.0	..	12
	2.001–3.000	57.0	..	36.0	..	8
2014-T42 ④ ⑩ Sheet and plate	0.020–1.000	58.0	..	34.0	..	14
2014-T6 and T62 ④ ⑩ Sheet	0.020–0.039	64.0	..	57.0	..	6
	0.040–0.249	66.0	..	58.0	..	7
2014-T62 ④ ⑩ and T651 ⑦ Plate	0.250–0.499	67.0	..	59.0	..	7
	0.500–1.000	67.0	..	59.0	..	6
	1.001–2.000	67.0	..	59.0	..	4
	2.001–2.500	65.0	..	58.0	..	2
	2.501–3.000	63.0	..	57.0	..	2
	3.001–4.000	59.0	..	55.0	..	1
ALCLAD 2014 ⑥						
Alclad 2014-O Sheet and Plate	0.020–0.499	..	30.0	..	14.0	16
	0.500–1.000	..	32.0 ⑤	..	..	10
Alclad 2014-T3 Flat sheet	0.020–0.024	54.0	..	33.0	..	14
	0.025–0.039	55.0	..	34.0	..	14
	0.040–0.249	57.0	..	35.0	..	15
Alclad 2014-T4 Coiled sheet	0.020–0.024	54.0	..	31.0	..	14
	0.025–0.039	55.0	..	32.0	..	14
	0.040–0.128	57.0	..	34.0	..	15
	0.129–0.249	57.0	..	34.0	..	15
Alclad 2014-T451 ⑦ ⑧ Plate	0.250–0.499	57.0	..	36.0	..	15
	0.500–1.000	58.0 ⑤	..	36.0 ⑤	..	14
	1.001–2.000	58.0 ⑤	..	36.0 ⑤	..	12
	2.001–3.000	57.0 ⑤	..	36.0 ⑤	..	8
Alclad 2014-T42 ④ ⑩ Sheet and plate	0.020–0.024	54.0	..	31.0	..	14
	0.025–0.039	55.0	..	32.0	..	14
	0.040–0.128	57.0	..	34.0	..	15
	0.129–0.249	57.0	..	34.0	..	15
	0.250–0.499	57.0	..	34.0	..	15
	0.500–1.000	58.0 ⑤	..	34.0 ⑤	..	14
Alclad 2014-T6 and T62 ④ ⑩ Sheet	0.020–0.024	62.0	..	54.0	..	7
	0.025–0.039	63.0	..	55.0	..	7
	0.040–0.249	64.0	..	57.0	..	8
Alclad 2014-T62 ④ ⑩ and T651 ⑦ Plate	0.250–0.499	64.0	..	57.0	..	8
	0.500–1.000	67.0 ⑤	..	59.0 ⑤	..	6
	1.001–2.000	67.0 ⑤	..	59.0 ⑤	..	4
	2.001–2.500	65.0 ⑤	..	58.0 ⑤	..	2
	2.501–3.000	63.0 ⑤	..	57.0 ⑤	..	2
	3.001–4.000	59.0 ⑤	..	55.0 ⑤	..	1
2024						
2024-O Sheet and plate	0.010–0.499	..	32.0	..	14.0	12
	0.500–1.750	..	32.0	..	..	12
2024-T3 ⑧ Sheet	0.008–0.009	63.0	..	42.0	..	10
	0.010–0.020	63.0	..	42.0	..	12
	0.021–0.128	63.0	..	42.0	..	15
	0.129–0.249	64.0	..	42.0	..	15
2024-T351 ⑦ ⑧ Plate	0.250–0.499	64.0	..	42.0	..	12
	0.500–1.000	63.0	..	42.0	..	8
	1.001–1.500	62.0	..	42.0	..	7
	1.501–2.000	62.0	..	42.0	..	6
	2.001–3.000	60.0	..	42.0	..	4
	3.001–4.000	57.0	..	41.0	..	4
2024-T361 ⑧ ⑪ Flat sheet and plate	0.020–0.062	67.0	..	50.0	..	8
	0.063–0.249	68.0	..	51.0	..	9
	0.250–0.499	66.0	..	49.0	..	9
	0.500	66.0	..	49.0	..	10

For all numbered footnotes, see page KA-SP-AA10-1.09

TABLE 7.2 Mechanical Property Limits—Heat-Treatable Alloys ^① ^⑭ (continued)

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
		ULTIMATE		YIELD		
		min.	max.	min.	max.	
2024 (Continued)						
2024-T4 Sheet	0.010–0.020	62.0	..	40.0	..	12
	0.021–0.249	62.0	..	40.0	..	15
2024-T42 ^④ ^⑩ Sheet and plate	0.010–0.020	62.0	..	38.0	..	12
	0.021–0.249	62.0	..	38.0	..	15
	0.250–0.499	62.0	..	38.0	..	12
	0.500–1.000	61.0	..	38.0	..	8
	1.001–1.500	60.0	..	38.0	..	7
	1.501–2.000	60.0	..	38.0	..	6
2024-T62 ^④ ^⑩ Sheet and plate	0.010–0.499	64.0	..	50.0	..	5
	0.500–3.000	63.0	..	50.0	..	5
2024-T72 ^④ ^⑩ Sheet	0.010–0.249	60.0	..	46.0	..	5
2024-T81 Flat sheet	0.010–0.249	67.0	..	58.0	..	5
2024-T851 ^⑦ Plate	0.250–0.499	67.0	..	58.0	..	5
	0.500–1.000	66.0	..	58.0	..	5
	1.001–1.499	66.0	..	57.0	..	5
2024-T861 ^⑪ Flat sheet and plate	0.020–0.062	70.0	..	62.0	..	3
	0.063–0.249	71.0	..	66.0	..	4
	0.250–0.499	70.0	..	64.0	..	4
	0.500	70.0	..	64.0	..	4
ALCLAD 2024 ^⑥						
Alclad 2024-O Sheet and plate	0.008–0.009	..	30.0	..	14.0	10
	0.010–0.032	..	30.0	..	14.0	12
	0.033–0.062	..	30.0	..	14.0	12
	0.063–0.187	..	32.0	..	14.0	12
	0.188–0.499	..	32.0	..	14.0	12
Alclad 2024-T3 ^⑧ Sheet	0.008–0.009	58.0	..	39.0	..	10
	0.010–0.020	59.0	..	39.0	..	12
	0.021–0.062	59.0	..	39.0	..	15
	0.063–0.128	61.0	..	40.0	..	15
	0.129–0.249	62.0	..	40.0	..	15
Alclad 2024-T351 ^⑦ ^⑧ Plate	0.250–0.499	62.0	..	40.0	..	12
	0.500–1.000	63.0 ^⑤	..	42.0 ^⑤	..	8
	1.001–1.500	62.0 ^⑤	..	42.0 ^⑤	..	7
	1.501–2.000	62.0 ^⑤	..	42.0 ^⑤	..	6
	2.001–3.000	60.0 ^⑤	..	42.0 ^⑤	..	4
	3.001–4.000	57.0 ^⑤	..	41.0 ^⑤	..	4
Alclad 2024-T361 ^⑧ ^⑪ Flat sheet and plate	0.020–0.062	61.0	..	47.0	..	8
	0.063–0.187	64.0	..	48.0	..	9
	0.188–0.249	64.0	..	48.0	..	9
	0.250–0.499	64.0	..	48.0	..	9
	0.500	66.0 ^⑤	..	49.0 ^⑤	..	10
Alclad 2024-T4 Sheet	0.010–0.020	58.0	..	36.0	..	12
	0.021–0.062	58.0	..	36.0	..	15
	0.063–0.128	61.0	..	38.0	..	15
Alclad 2024-T42 ^④ ^⑩ Sheet and plate	0.008–0.009	55.0	..	34.0	..	10
	0.010–0.020	57.0	..	34.0	..	12
	0.021–0.062	57.0	..	34.0	..	15
	0.063–0.187	60.0	..	36.0	..	15
	0.188–0.249	60.0	..	36.0	..	15
	0.250–0.499	60.0	..	36.0	..	12
	0.500–1.000	61.0 ^⑤	..	38.0 ^⑤	..	8
	1.001–1.500	60.0 ^⑤	..	38.0 ^⑤	..	7
	1.501–2.000	60.0 ^⑤	..	38.0 ^⑤	..	6
	2.001–3.000	58.0 ^⑤	..	38.0 ^⑤	..	4
Alclad 2024-T62 ^④ ^⑩ Sheet and plate	0.010–0.062	60.0	..	47.0	..	5
	0.063–0.187	62.0	..	49.0	..	5
	0.188–0.499	62.0	..	49.0	..	5
Alclad 2024-T72 ^④ ^⑩ Sheet	0.010–0.062	56.0	..	43.0	..	5
	0.063–0.187	58.0	..	45.0	..	5
	0.188–0.249	58.0	..	45.0	..	5
Alclad 2024-T81 Flat sheet	0.010–0.062	62.0	..	54.0	..	5
	0.063–0.187	65.0	..	56.0	..	5
	0.188–0.249	65.0	..	56.0	..	5
Alclad 2024-T851 ^⑦ Plate	0.250–0.499	65.0	..	56.0	..	5
	0.500–1.000	66.0 ^⑤	..	58.0 ^⑤	..	5

For all numbered footnotes, see page KA-SP-AA10-1.09

TABLE 7.2 Mechanical Property Limits—Heat-Treatable Alloys ^① ^⑭ (continued)

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
		ULTIMATE		YIELD		
		min.	max.	min.	max.	
ALCLAD 2024 (Continued)						
Alclad 2024-T861 ^⑪ Flat sheet and plate	0.020–0.062	64.0	..	58.0	..	3
	0.063–0.187	69.0	..	64.0	..	4
	0.188–0.249	69.0	..	64.0	..	4
	0.250–0.499	68.0	..	62.0	..	4
	0.500	70.0 ^⑤	..	64.0 ^⑤	..	4
1½% ALCLAD 2024 ^⑥						
1½% Alclad 2024-O Sheet and plate	0.188–0.499	..	32.0	..	14.0	12
	0.500–1.750	..	32.0 ^⑤	..	..	12
1½% Alclad 2024-T3 ^⑧ Sheet	0.188–0.249	63	..	41.0	..	15
1½% Alclad 2024-T351 ^⑦ ^⑧ Plate	0.250–0.499	63.0	..	41.0	..	12
	0.500–1.000	63.0 ^⑤	..	42.0 ^⑤	..	8
	1.001–1.500	62.0 ^⑤	..	42.0 ^⑤	..	7
	1.501–2.000	62.0 ^⑤	..	42.0 ^⑤	..	6
	2.001–3.000	60.0 ^⑤	..	42.0 ^⑤	..	4
3.001–4.000	57.0 ^⑤	..	41.0 ^⑤	..	4	
1½% Alclad 2024-T361 ^⑧ ^⑪ Flat sheet and plate	0.188–0.249	65.0	..	49.0	..	9
	0.250–0.499	65.0	..	48.0	..	9
	0.500	66.0 ^⑤	..	49.0 ^⑤	..	10
1½% Alclad 2024-T42 Sheet and plate ^④ ^⑩	0.188–0.249	61.0	..	37.0	..	15
	0.250–0.499	61.0	..	37.0	..	12
	0.500–1.000	61.0 ^⑤	..	38.0 ^⑤	..	8
	1.001–1.500	60.0 ^⑤	..	38.0 ^⑤	..	7
	1.501–2.000	60.0 ^⑤	..	38.0 ^⑤	..	6
2.001–3.000	58.0 ^⑤	..	38.0 ^⑤	..	4	
1½% Alclad 2024-T62 ^④ ^⑩ Sheet and plate	0.188–0.499	62.0	..	49.0	..	5
1½% Alclad 2024-T72 ^④ ^⑩ Sheet	0.188–0.249	59.0	..	45.0	..	5
1½% Alclad 2024-T81 Flat sheet	0.188–0.249	66.0	..	57.0	..	5
1½% Alclad 2024-T851 ^⑦ Plate	0.250–0.499	66.0	..	57.0	..	5
	0.500–1.000	66.0 ^⑤	..	58.0 ^⑤	..	5
1½% Alclad 2024-T861 ^⑪ Flat sheet and plate	0.188–0.249	70.0	..	65.0	..	4
	0.250–0.499	69.0	..	63.0	..	4
	0.500	70.0 ^⑤	..	64.0 ^⑤	..	4
ALCLAD ONE SIDE 2024 ^⑥						
Alclad One Side 2024-O Sheet and plate	0.008–0.009	..	31.0	..	14.0	10
	0.010–0.062	..	31.0	..	14.0	12
	0.063–0.499	..	32.0	..	14.0	12
Alclad One Side 2024-T3 ^⑧ Sheet	0.010–0.020	61.0	..	40.0	..	12
	0.021–0.062	61.0	..	40.0	..	15
	0.063–0.128	62.0	..	41.0	..	15
	0.129–0.249	63.0	..	41.0	..	15
Alclad One Side 2024-T351 ^⑦ ^⑧ Plate	0.250–0.499	63.0	..	41.0	..	12
Alclad One Side 2024-T361 ^⑧ ^⑪ Sheet and plate	0.020–0.062	64.0	..	48.0	..	8
	0.063–0.249	66.0	..	49.0	..	9
	0.250–0.499	65.0	..	48.0	..	9
Alclad One Side 2024-T42 ^④ ^⑩ Sheet and plate	0.010–0.020	59.0	..	35.0	..	12
	0.021–0.062	59.0	..	36.0	..	15
	0.063–0.249	61.0	..	37.0	..	15
	0.250–0.499	61.0	..	37.0	..	12
Alclad One Side 2024-T62 ^④ ^⑩ Sheet and plate	0.010–0.062	62.0	..	48.0	..	5
	0.063–0.499	63.0	..	49.0	..	5
Alclad One Side 2024-T72 ^④ ^⑩ Flat sheet	0.010–0.062	58.0	..	44.0	..	5
	0.063–0.249	59.0	..	45.0	..	5
Alclad One Side 2024-T81 Flat sheet	0.010–0.062	64.0	..	56.0	..	5
	0.063–0.249	66.0	..	57.0	..	5
Alclad One Side 2024-T851 ^⑦ Plate	0.250–0.499	66.0	..	57.0	..	5
Alclad One Side 2024-T861 ^⑪ Sheet and plate	0.020–0.062	67.0	..	60.0	..	3
	0.063–0.249	70.0	..	65.0	..	4
	0.250–0.499	69.0	..	63.0	..	4

For all numbered footnotes, see page KA-SP-AA10-1.09

TABLE 7.2 Mechanical Property Limits—Heat-Treatable Alloys ^① ^⑭ (continued)

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③	
		ULTIMATE		YIELD			
		min.	max.	min.	max.		
1½% ALCLAD ONE SIDE 2024 ^⑥							
1½% Alclad One Side 2024-O Sheet and plate	0.188–0.499	..	32.0	..	14.0	12	
1½% Alclad One Side 2024-T3 ^⑧ Sheet	0.188–0.249	63.0	..	41.0	..	15	
1½% Alclad One Side 2024-T351 ^⑦ ^⑧ Plate	0.250–0.499	63.0	..	41.0	..	12	
1½% Alclad One Side 2024-T361 ^⑧ ^⑪ Sheet and plate	0.188–0.249	66.0	..	49.0	..	9	
	0.250–0.499	65.0	..	48.0	..	9	
1½% Alclad One Side 2024-T42 ^④ ^⑩ Sheet and plate	0.188–0.249	61.0	..	37.0	..	15	
	0.250–0.499	61.0	..	37.0	..	12	
1½% Alclad One Side 2024-T62 ^④ ^⑩ Sheet and plate	0.188–0.499	63.0	..	49.0	..	5	
1½% Alclad One Side 2024-T72 ^④ ^⑩ Flat sheet	0.188–0.249	59.0	..	45.0	..	5	
1½% Alclad One Side 2024-T81 Flat sheet	0.188–0.249	66.0	..	57.0	..	5	
1½% Alclad One Side 2024-T851 ^⑦ Plate	0.250–0.499	66.0	..	57.0	..	5	
1½% Alclad One Side 2024-T861 ^⑪ Sheet and plate	0.188–0.249	70.0	..	65.0	..	4	
	0.250–0.499	69.0	..	63.0	..	4	
2036							
2036-T4 Flat sheet	0.025–0.125	42.0	..	23.0	..	20	
2124							
ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	AXIS OF TEST SPECIMEN	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
			ULTIMATE		YIELD		
			min.	max.	min.	max.	
2124-T351 ^⑦ Plate	1.000–1.499	Longitudinal	61.0	..	45.0	..	14
		Long Transverse	62.0	..	42.0	..	13
	1.500–2.000	Longitudinal	61.0	..	45.0	..	14
		Long Transverse	62.0	..	42.0	..	13
		Short Transverse	58.0	..	38.0	..	4.5
	2.001–3.000	Longitudinal	61.0	..	45.0	..	14
Long Transverse		62.0	..	41.0	..	10	
Short Transverse		58.0	..	38.0	..	4	
2124-T851 ^⑦ ^⑩ Plate	1.000–2.000	Longitudinal	66.0	..	57.0	..	6
		Long Transverse	66.0	..	57.0	..	5
		Short Transverse	64.0 ^⑮	..	55.0 ^⑮	..	1.5 ^⑮
	2.001–3.000	Longitudinal	65.0	..	57.0	..	6
		Long Transverse	65.0	..	57.0	..	4
		Short Transverse	63.0	..	55.0	..	1.5
	3.001–4.000	Longitudinal	65.0	..	56.0	..	5
		Long Transverse	65.0	..	56.0	..	4
		Short Transverse	62.0	..	54.0	..	1.5
	4.001–5.000	Longitudinal	64.0	..	55.0	..	5
		Long Transverse	64.0	..	55.0	..	4
		Short Transverse	61.0	..	53.0	..	1.5
	5.001–6.000	Longitudinal	63.0	..	54.0	..	5
		Long Transverse	63.0	..	54.0	..	4
		Short Transverse	58.0	..	51.0	..	1.5

For all numbered footnotes, see page KA-SP-AA10-1.09

TABLE 7.2 Mechanical Property Limits—Heat-Treatable Alloys ^① ^⑭ (continued)

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
		ULTIMATE		YIELD		
		min.	max.	min.	max.	
2219						
2219-O Sheet and plate	0.020–2.000	..	32.0	..	16.0	12
2219-T31 ^④ Flat sheet	0.020–0.039	46.0	..	29.0	..	8
	0.040–0.249	46.0	..	28.0	..	10
2219-T351 ^⑦ ^⑧ Plate	0.250–2.000	46.0	..	28.0	..	10
	2.001–3.000	44.0	..	28.0	..	10
	3.001–4.000	42.0	..	27.0	..	9
	4.001–5.000	40.0	..	26.0	..	9
	5.001–6.000	39.0	..	25.0	..	8
2219-T37 ^④ Flat sheet and plate	0.020–0.039	49.0	..	38.0	..	6
	0.040–2.000	49.0	..	37.0	..	6
	2.001–2.500	49.0	..	37.0	..	6
	2.501–3.000	47.0	..	36.0	..	6
	3.001–4.000	45.0	..	35.0	..	5
4.001–5.000	43.0	..	34.0	..	4	
2219-T62 ^④ ^⑩ Sheet and plate	0.020–0.039	54.0	..	36.0	..	6
	0.040–0.249	54.0	..	36.0	..	7
	0.250–1.000	54.0	..	36.0	..	8
	1.001–2.000	54.0	..	36.0	..	7
2219-T81 Flat sheet	0.020–0.039	62.0	..	46.0	..	6
	0.040–0.249	62.0	..	46.0	..	7
2219-T851 ^⑦ Plate	0.250–1.000	62.0	..	46.0	..	8
	1.001–2.000	62.0	..	46.0	..	7
	2.001–3.000	62.0	..	45.0	..	6
	3.001–4.000	60.0	..	44.0	..	5
	4.001–5.000	59.0	..	43.0	..	5
5.001–6.000	57.0	..	42.0	..	4	
2219-T87 Flat sheet and plate	0.020–0.039	64.0	..	52.0	..	5
	0.040–0.249	64.0	..	52.0	..	6
	0.250–1.000	64.0	..	51.0	..	7
	1.001–2.000	64.0	..	51.0	..	6
	2.001–3.000	64.0	..	51.0	..	6
	3.001–4.000	62.0	..	50.0	..	4
4.001–5.000	61.0	..	49.0	..	3	
ALCLAD 2219 ^⑥						
Alclad 2219-O Sheet and plate	0.020–0.499	..	32.0	..	16.0	12
	0.500–2.000	..	32.0 ^⑤	..	16.0 ^⑤	..
Alclad 2219-T31 ^⑧ Flat sheet	0.040–0.099	42.0	..	25.0	..	10
	0.100–0.249	44.0	..	26.0	..	10
Alclad 2219-T351 ^⑦ ^⑧ Plate	0.250–0.499	44.0	..	26.0	..	10
Alclad 2219-T37 ^⑧ Flat sheet and plate	0.040–0.099	45.0	..	34.0	..	6
	0.100–0.249	47.0	..	35.0	..	6
	0.250–0.499	47.0	..	35.0	..	6
Alclad 2219-T62 ^④ ^⑩ Sheet and plate	0.020–0.039	44.0	..	29.0	..	6
	0.040–0.099	49.0	..	32.0	..	7
	0.100–0.249	51.0	..	34.0	..	7
	0.250–0.499	51.0	..	34.0	..	8
	0.500–1.000	54.0 ^⑤	..	36.0 ^⑤	..	8
	1.001–2.000	54.0 ^⑤	..	36.0 ^⑤	..	7
Alclad 2219-T81 Flat sheet	0.020–0.039	49.0	..	37.0	..	6
	0.040–0.099	55.0	..	41.0	..	7
	0.100–0.249	58.0	..	43.0	..	7
Alclad 2219-T851 ^⑦ Plate	0.250–0.499	58.0	..	42.0	..	8
Alclad 2219-T87 Flat sheet and plate	0.040–0.099	57.0	..	46.0	..	6
	0.100–0.249	60.0	..	48.0	..	6
	0.250–0.499	60.0	..	48.0	..	7
6061						
6061-O Sheet and plate	0.006–0.007	..	22.0	..	12.0	10
	0.008–0.009	..	22.0	..	12.0	12
	0.010–0.020	..	22.0	..	12.0	14
	0.021–0.128	..	22.0	..	12.0	16
	0.129–0.499	..	22.0	..	12.0	18
	0.500–1.000	..	22.0	..	..	18
	1.001–3.000	..	22.0	..	..	16
6061-T4 Sheet	0.006–0.007	30.0	..	16.0	..	10
	0.008–0.009	30.0	..	16.0	..	12
	0.010–0.020	30.0	..	16.0	..	14
	0.021–0.249	30.0	..	16.0	..	16

For all numbered footnotes, see page KA-SP-AA10-1.09

TABLE 7.2 Mechanical Property Limits—Heat-Treatable Alloys ^① ^⑭ (continued)

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
		ULTIMATE		YIELD		
		min.	max.	min.	max.	
6061 (Continued)						
6061-T451 ^⑦ ^⑧ Plate	0.250–1.000	30.0	..	16.0	..	18
	1.001–3.000	30.0	..	16.0	..	16
6061-T42 ^④ ^⑩ Sheet and plate	0.006–0.007	30.0	..	14.0	..	10
	0.008–0.009	30.0	..	14.0	..	12
	0.010–0.020	30.0	..	14.0	..	14
	0.021–0.249	30.0	..	14.0	..	16
	0.250–1.000	30.0	..	14.0	..	18
	1.001–3.000	30.0	..	14.0	..	16
6061-T6 and T62 ^④ ^⑩ Sheet	0.006–0.007	42.0	..	35.0	..	4
	0.008–0.009	42.0	..	35.0	..	6
	0.010–0.020	42.0	..	35.0	..	8
	0.021–0.249	42.0	..	35.0	..	10
6061-T62 ^④ ^⑩ and T651 ^⑦ Plate	0.250–0.499	42.0	..	35.0	..	10
	0.500–1.000	42.0	..	35.0	..	9
	1.001–2.000	42.0	..	35.0	..	8
	2.001–4.000	42.0	..	35.0	..	6
	4.001–6.000 ^⑨	40.0	..	35.0	..	6
ALCLAD 6061 ^⑥						
Alclad 6061-O Sheet and plate	0.010–0.020	..	20.0	..	12.0	14
	0.021–0.128	..	20.0	..	12.0	16
	0.129–0.499	..	20.0	..	12.0	18
	0.500–1.000	..	22.0 ^⑤	..	..	18
	1.001–3.000	..	22.0 ^⑤	..	..	16
Alclad 6061-T4 Sheet	0.010–0.020	27.0	..	14.0	..	14
	0.021–0.249	27.0	..	14.0	..	16
Alclad 6061-T451 ^⑦ ^⑧ Plate	0.250–0.499	27.0	..	14.0	..	18
	0.500–1.000	30.0 ^⑤	..	16.0 ^⑤	..	18
	1.001–3.000	30.0 ^⑤	..	16.0 ^⑤	..	16
Alclad 6061-T42 ^④ ^⑩ Sheet and plate	0.010–0.020	27.0	..	12.0	..	14
	0.021–0.249	27.0	..	12.0	..	16
	0.250–0.499	27.0	..	12.0	..	18
	0.500–1.000	30.0 ^⑤	..	14.0 ^⑤	..	18
	1.001–3.000	30.0 ^⑤	..	14.0 ^⑤	..	16
Alclad 6061-T6 and T62 ^④ ^⑩ Sheet	0.010–0.020	38.0	..	32.0	..	8
	0.021–0.249	38.0	..	32.0	..	10
Alclad 6061-T62 ^④ ^⑩ and T651 ^⑦ Plate	0.250–0.499	38.0	..	32.0	..	10
	0.500–1.000	42.0 ^⑤	..	35.0 ^⑤	..	9
	1.001–2.000	42.0 ^⑤	..	35.0 ^⑤	..	8
	2.001–3.000	42.0 ^⑤	..	35.0 ^⑤	..	6
	3.001–4.000	42.0 ^⑤	..	35.0 ^⑤	..	6
	4.001–5.000 ^⑨	40.0 ^⑤	..	35.0 ^⑤	..	6

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	AXIS OF TEST SPECIMEN	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
			ULTIMATE		YIELD		
			min.	max.	min.	max.	
7050							
7050-T7451 ^⑯ ^⑰ ^⑱ ^⑳ Plate	0.250–2.000	Longitudinal	74.0	..	64.0	..	10
		Long Transverse	74.0	..	64.0	..	9
	2.001–3.000	Longitudinal	73.0	..	63.0	..	9
		Long Transverse	73.0	..	63.0	..	8
		Short Transverse	68.0	..	59.0	..	2
	3.001–4.000	Longitudinal	72.0	..	62.0	..	9
		Long Transverse	72.0	..	62.0	..	6
		Short Transverse	68.0	..	58.0	..	3
	4.001–5.000	Longitudinal	71.0	..	61.0	..	9
		Long Transverse	71.0	..	61.0	..	5
		Short Transverse	67.0	..	57.0	..	3
	5.001–6.000	Longitudinal	70.0	..	60.0	..	8
		Long Transverse	70.0	..	60.0	..	4
		Short Transverse	67.0	..	57.0	..	3
	6.001–7.000	Longitudinal	69.0	..	59.0	..	7
		Long Transverse	69.0	..	59.0	..	4
		Short Transverse	66.0	..	56.0	..	3
	7.001–8.000	Longitudinal	68.0	..	58.0	..	6
		Long Transverse	68.0	..	58.0	..	4
		Short Transverse	65.0	..	55.0	..	3

For all numbered footnotes, see page KA-SP-AA10-1.09

TABLE 7.2 Mechanical Property Limits—Heat-Treatable Alloys ^① ^⑭ (continued)

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	AXIS OF TEST SPECIMEN	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
			ULTIMATE		YIELD		
			min.	max.	min.	max.	
7050 (Continued)							
7050-T7651 ^⑯ ^⑰ ^⑱ Plate	0.250–1.000	Longitudinal Long Transverse	76.0 76.0	.. ..	66.0 66.0	.. ..	9 8
	1.001–1.500	Longitudinal Long Transverse	77.0 77.0	.. ..	67.0 67.0	.. ..	9 8
	1.501–2.000	Longitudinal Long Transverse	76.0 76.0	.. ..	66.0 66.0	.. ..	9 8
	2.001–3.000	Longitudinal Long Transverse Short Transverse	76.0 76.0 70.0	.. .. ..	66.0 66.0 60.0	.. .. ..	8 7 1.5

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
		ULTIMATE		YIELD		
		min.	max.	min.	max.	
7075						
7075-O Sheet and plate	0.015–0.499	..	40.0	..	21.0	10
	0.500–2.000	..	40.0	..	..	10
7075-T6 and T62 ^④ ^⑩ Sheet	0.008–0.011	74.0	..	63.0	..	5
	0.012–0.039	76.0	..	67.0	..	8
	0.040–0.062	78.0	..	68.0	..	9
	0.063–0.125	78.0	..	68.0	..	9
	0.126–0.187	79.0	..	69.0	..	9
	0.188–0.249	80.0	..	69.0	..	9
7075-T62 ^④ ^⑩ and T651 ^⑦ Plate	0.250–0.499	78.0	..	67.0	..	9
	0.500–1.000	78.0	..	68.0	..	7
	1.001–2.000	77.0	..	67.0	..	6
	2.001–2.500	76.0	..	64.0	..	5
	2.501–3.000	72.0	..	61.0	..	5
	3.001–3.500	71.0	..	58.0	..	5
	3.501–4.000	67.0	..	54.0	..	3
7075-T73 Sheet	0.040–0.249	67.0	..	56.0	..	8
7075-T7351 ^⑦ ^⑫ Plate	0.250–1.000	69.0	..	57.0	..	7
	1.001–2.000	69.0	..	57.0	..	6
	2.001–2.500	66.0	..	52.0	..	6
	2.501–3.000	64.0	..	49.0	..	6
	3.001–3.500	63.0	..	49.0	..	6
	3.501–4.000	61.0	..	48.0	..	6
7075-T76 ^⑬ Sheet	0.063–0.125	73.0	..	62.0	..	8
	0.126–0.249	73.0	..	62.0	..	8
7075-T7651 ^⑦ ^⑬ Plate	0.250–0.499	72.0	..	61.0	..	8
	0.500–1.000	71.0	..	60.0	..	6
	1.001–2.000	71.0	..	60.0	..	5

ALCLAD 7075 ^⑥						
Alclad 7075-O Sheet and plate	0.008–0.014	..	36.0	..	20.0	9
	0.015–0.062	..	36.0	..	20.0	10
	0.063–0.187	..	38.0	..	20.0	10
	0.188–0.499	..	39.0	..	21.0	10
	0.500–1.000	..	40.0 ^⑮	..	..	10
Alclad 7075-T6 and T62 ^④ ^⑩ Sheet	0.008–0.011	68.0	..	58.0	..	5
	0.012–0.039	71.0	..	61.0	..	8
	0.040–0.062	72.0	..	62.0	..	9
	0.063–0.125	74.0	..	64.0	..	9
	0.126–0.187	74.0	..	64.0	..	9
	0.188–0.249	76.0	..	65.0	..	9
Alclad 7075-T62 ^④ ^⑩ and T651 ^⑦ Plate	0.250–0.499	75.0	..	65.0	..	9
	0.500–1.000	78.0 ^⑮	..	68.0 ^⑮	..	7
	1.001–2.000	77.0 ^⑮	..	67.0 ^⑮	..	6
	2.001–2.500	76.0 ^⑮	..	64.0 ^⑮	..	5
	2.501–3.000	72.0 ^⑮	..	61.0 ^⑮	..	5
	3.001–3.500	71.0 ^⑮	..	58.0 ^⑮	..	5
	3.501–4.000	67.0 ^⑮	..	54.0 ^⑮	..	3
Alclad 7075-T73 Sheet	0.040–0.062	63.0	..	51.0	..	8
	0.063–0.187	64.0	..	52.0	..	8
	0.188–0.249	66.0	..	54.0	..	8
Alclad 7075-T7351 ^⑦ ^⑫ Plate	0.250–0.499	66.0	..	54.0	..	8
	0.500–1.000	69.0 ^⑮	..	57.0 ^⑮	..	7

For all numbered footnotes, see page KA-SP-AA10-1.09

TABLE 7.2 Mechanical Property Limits—Heat-Treatable Alloys ^① ^⑭ (continued)

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
		ULTIMATE		YIELD		
		min.	max.	min.	max.	
ALCLAD 7075 ^⑥ (Continued)						
Alclad 7075-T76 ^⑬ Sheet	0.040–0.062	67.0	..	56.0	..	8
	0.063–0.125	68.0	..	57.0	..	8
	0.125–0.187	68.0	..	57.0	..	8
	0.188–0.249	70.0	..	59.0	..	8
Alclad 7075-T7651 ^⑦ ^⑬ Plate	0.250–0.499	69.0	..	58.0	..	8
	0.500–1.000	71.0 ^⑤	..	60.0 ^⑤	..	6
2½% ALCLAD 7075 ^⑥						
2½% Alclad 7075-O Sheet and plate	0.188–0.499	..	39.0	..	20.0	10
	0.500–1.000	..	40.0 ^⑤	..	..	10
2½% Alclad 7075-T6 and T62 ^④ ^⑩ Sheet	0.188–0.249	74.0	..	64.0	..	8
2½% Alclad 7075-T62 ^④ ^⑩ and T651 ^⑦ Plate	0.250–0.499	74.0	..	64.0	..	9
	0.500–1.000	78.0 ^⑤	..	68.0 ^⑤	..	7
	1.001–2.000	77.0 ^⑤	..	67.0 ^⑤	..	6
	2.001–2.500	76.0 ^⑤	..	64.0 ^⑤	..	5
	2.501–3.000	72.0 ^⑤	..	61.0 ^⑤	..	5
	3.001–3.500	71.0 ^⑤	..	58.0 ^⑤	..	5
3.501–4.000	67.0 ^⑤	..	54.0 ^⑤	..	3	
2½% Alclad 7075-T73 Sheet	0.188–0.249	64.0	..	53.0	..	8
2½% Alclad 7075-T7351 ^⑦ ^⑫ Plate	0.250–0.499	65.0	..	54.0	..	8
	0.500–1.000	69.0 ^⑤	..	57.0 ^⑤	..	7
2½% Alclad 7075-T76 ^⑬ Sheet	0.188–0.249	69.0	..	59.0	..	8
2½% Alclad 7075-T7651 ^⑦ ^⑬ Plate	0.250–0.499	68.0	..	58.0	..	8
	0.500–1.000	71.0 ^⑤	..	60.0 ^⑤	..	6
ALCLAD ONE SIDE 7075 ^⑥						
Alclad One Side 7075-O Sheet and plate	0.015–0.062	..	38.0	..	21.0	10
	0.063–0.187	..	39.0	..	21.0	10
	0.188–0.499	..	39.0	..	21.0	10
	0.500–1.000	..	40.0 ^⑤	..	..	10
Alclad One Side 7075-T6 and T62 ^④ ^⑩ Sheet	0.008–0.011	71.0	..	60.0	..	5
	0.012–0.039	74.0	..	64.0	..	8
	0.040–0.062	75.0	..	65.0	..	9
	0.063–0.125	76.0	..	66.0	..	9
	0.126–0.187	77.0	..	66.0	..	9
	0.188–0.249	78.0	..	67.0	..	9
Alclad One Side 7075 T62 ^④ ^⑩ and T651 ^⑦ Plate	0.250–0.499	76.0	..	66.0	..	9
	0.500–1.000	78.0 ^⑤	..	68.0 ^⑤	..	7
	1.001–2.000	77.0 ^⑤	..	67.0 ^⑤	..	6
2½% ALCLAD ONE SIDE 7075 ^⑥						
2½% Alclad One Side 7075-O Sheet and plate	0.188–0.499	..	39.0	..	21.0	10
	0.500–1.000	..	40.0 ^⑤	..	..	10
2½% Alclad One Side 7075-T6 and T62 ^④ ^⑩ Sheet	0.188–0.249	76.0	..	65.0	..	8
2½% Alclad One Side 7075 T62 ^④ ^⑩ and T651 ^⑦ Plate	0.250–0.499	76.0	..	65.0	..	9
	0.500–1.000	78.0 ^⑤	..	68.0 ^⑤	..	7
	1.001–2.000	77.0 ^⑤	..	67.0 ^⑤	..	6
7008 ALCLAD 7075 ^⑥						
7008 Alclad 7075-O Sheet and plate	0.015–0.062	..	40.0	..	21.0	10
	0.063–0.187	..	40.0	..	21.0	10
	0.188–0.499	..	40.0	..	21.0	10
	0.500–2.000	..	40.0 ^⑤	..	..	10
7008 Alclad 7075-T6 and T62 ^④ ^⑩ Sheet	0.015–0.039	73.0	..	63.0	..	7
	0.040–0.062	75.0	..	65.0	..	8
	0.063–0.087	75.0	..	65.0	..	8
	0.188–0.249	76.0	..	66.0	..	8
7008 Alclad 7075-T62 ^④ ^⑩ and T651 ^⑦ Plate	0.250–0.499	76.0	..	66.0	..	9
	0.500–1.000	78.0 ^⑤	..	68.0 ^⑤	..	7
	1.001–2.000	77.0 ^⑤	..	67.0 ^⑤	..	6
	2.001–2.500	76.0 ^⑤	..	64.0 ^⑤	..	5
	2.501–3.000	72.0 ^⑤	..	61.0 ^⑤	..	5
	3.001–3.500	71.0 ^⑤	..	58.0 ^⑤	..	5
3.501–4.000	67.0 ^⑤	..	54.0 ^⑤	..	3	

For all numbered footnotes, see page KA-SP-AA10-1.09

TABLE 7.2 Mechanical Property Limits—Heat-Treatable Alloys ^① ^⑭ (continued)

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
		ULTIMATE		YIELD		
		min.	max.	min.	max.	
7008 ALCLAD 7075 ^⑥ (Continued)						
7008 Alclad 7075-T76 ^⑬ Sheet	0.040–0.062	70.0	..	59.0	..	8
	0.063–0.187	71.0	..	60.0	..	8
	0.188–0.249	72.0	..	61.0	..	8
7008 Alclad 7075-T7651 ^⑦ ^⑬ Plate	0.250–0.499	71.0	..	60.0	..	8
	0.500–1.000	71.0 ^⑤	..	60.0 ^⑤	..	6
7178						
7178-O Sheet and plate	0.015–0.499	..	40.0	..	21.0	10
	0.500	..	40.0	..	..	10
7178-T6 and T62 ^④ ^⑩ Sheet	0.015–0.044	83.0	..	72.0	..	7
	0.045–0.249	84.0	..	73.0	..	8
7178-T62 ^④ ^⑩ and T651 ^⑦ Plate	0.250–0.499	84.0	..	73.0	..	8
	0.500–1.000	84.0	..	73.0	..	6
	1.001–1.500	84.0	..	73.0	..	4
	1.501–2.000	80.0	..	70.0	..	3
7178-T76 ^⑬ Sheet	0.045–0.249	75.0	..	64.0	..	8
7178-T7651 ^⑦ ^⑬ Plate	0.250–0.499	74.0	..	63.0	..	8
	0.500–1.000	73.0	..	62.0	..	6
ALCLAD 7178 ^⑥						
Alclad 7178-O Sheet and plate	0.015–0.062	..	36.0	..	20.0	10
	0.063–0.187	..	38.0	..	20.0	10
	0.188–0.499	..	40.0	..	21.0	10
	0.500	..	40.0	..	..	10
Alclad 7178-T6 and T62 ^④ ^⑩ Sheet	0.015–0.044	76.0	..	66.0	..	7
	0.045–0.062	78.0	..	68.0	..	8
	0.063–0.187	80.0	..	70.0	..	8
	0.188–0.249	82.0	..	71.0	..	8
Alclad 7178-T62 ^④ ^⑩ and T651 ^⑦ Plate	0.250–0.499	82.0	..	71.0	..	8
	0.500–1.000	84.0 ^⑤	..	73.0 ^⑤	..	6
	1.001–1.500	84.0 ^⑤	..	73.0 ^⑤	..	4
	1.501–2.000	80.0 ^⑤	..	70.0 ^⑤	..	3
Alclad 7178-T76 ^⑬ Sheet	0.045–0.062	71.0	..	60.0	..	8
	0.063–0.187	71.0	..	60.0	..	8
	0.188–0.249	73.0	..	61.0	..	8
Alclad 7178-T7651 ^⑦ ^⑬ Plate	0.250–0.499	72.0	..	60.0	..	8
	0.500–1.000	73.0 ^⑤	..	62.0 ^⑤	..	6
7475						
7475-T61 Sheet	0.040–0.249	75.0	..	64.0	..	9

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	AXIS OF TEST SPECIMEN	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③	
			ULTIMATE		YIELD			
			min.	max.	min.	max.		
7475-T7351 Plate	0.250–1.500	Longitudinal	71.0	..	60.0	..	10	
		Long Transverse	71.0	..	60.0	..	9	
	1.001–1.500	Short Transverse	67.0 ^{②②}	..	56.0 ^{②②}	..	4 ^{②②}	
		Longitudinal	Long Transverse	70.0	..	58.0	..	10
			Long Transverse	70.0	..	58.0	..	8
	Short Transverse		66.0	..	54.0	..	4	
	2.001–2.500	Longitudinal	69.0	..	57.0	..	10	
		Long Transverse	69.0	..	57.0	..	8	
		Short Transverse	65.0	..	53.0	..	4	
	2.501–3.000	Longitudinal	68.0	..	56.0	..	10	
		Long Transverse	68.0	..	56.0	..	8	
		Short Transverse	65.0	..	53.0	..	3	
	3.001–3.500	Longitudinal	65.0	..	53.0	..	10	
		Long Transverse	65.0	..	53.0	..	8	
Short Transverse		64.0	..	51.0	..	3		
3.501–4.000	Longitudinal	64.0	..	52.0	..	9		
	Long Transverse	64.0	..	52.0	..	7		
	Short Transverse	63.0	..	50.0	..	3		

For all numbered footnotes, see page KA-SP-AA10-1.09

TABLE 7.2 Mechanical Property Limits—Heat-Treatable Alloys ^① ^⑭ (concluded)

7475 (Continued)

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
		ULTIMATE		YIELD		
		min.	max.	min.	max.	
7475-T761 Sheet	0.040–0.249	71.0	..	60.0	..	9

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	AXIS OF TEST SPECIMEN	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
			ULTIMATE		YIELD		
			min.	max.	min.	max.	
7475-T7651 Plate	0.250–0.499	Longitudinal	70.0	..	60.0	..	9
		Long Transverse	71.0	..	60.0	..	9
	0.500–1.000	Longitudinal	69.0	..	59.0	..	8
		Long Transverse	70.0	..	59.0	..	8
	1.001–1.500	Longitudinal	69.0	..	59.0	..	6
		Long Transverse	70.0	..	59.0	..	6

ALCLAD 7475 ^⑥

ALLOY AND TEMPER	SPECIFIED THICKNESS ^② in.	TENSILE STRENGTH—ksi				ELONGATION PERCENT MIN. in 2 in. or 4D ^③
		ULTIMATE		YIELD		
		min.	max.	min.	max.	
Alclad 7475-T61 Sheet	0.040–0.062	69.0	..	59.0	..	9
	0.063–0.187	70.0	..	60.0	..	9
	0.188–0.249	72.0	..	61.0	..	9
Alclad 7475-T761 Sheet	0.040–0.062	66.0	..	55.0	..	9
	0.063–0.187	68.0	..	57.0	..	9
	0.188–0.249	70.0	..	60.0	..	9

Footnotes for Table 7.2

(Page numbers and tables noted within footnotes reference pages in Aluminum standards and data 2006.)

- ① The data base and criteria upon which these mechanical property limits are established are outlined on page 6-1 under "Mechanical Properties."
- ② Type of specimen used depends on thickness of material; see "Sampling and Testing," pages 4-1 through 4-5
- ③ D represents specimen diameter.
- ④ These properties can usually be obtained by the user, when the material is properly solution heat treated or solution and precipitation heat treated from the O (annealed) or F (as fabricated) temper. These properties also apply to samples of material in the O or F tempers, which are solution heat treated or solution and precipitation treated by the producer to determine that the material will respond to proper heat treatment. Properties attained by the user, however, may be lower than those listed if the material has been formed or otherwise cold or hot worked, particularly in the annealed temper, prior to solution heat treatment.
- ⑤ This table specifies the properties applicable to the test specimens, and since for plate 0.500 or over in thickness the cladding material is removed during preparation of the test specimens, the listed properties are applicable to the core material only. Tensile and yield strengths of the composite plate are slightly lower depending upon the thickness of the cladding.
- ⑥ See page 6-4 for specific cladding thicknesses.
- ⑦ For stress-relieved tempers the characteristics and properties other than those specified may differ somewhat from the corresponding characteristics and properties of material in the basic temper.
- ⑧ Upon artificial aging, T3/T31, T37, T351, T361 and T451 temper material shall be capable of developing the mechanical properties applicable to the T81, T87, T851, T861 and T651 tempers, respectively.
- ⑨ The properties for this thickness apply only to the T651 temper.
- ⑩ This temper is not available from the material producer.
- ⑪ Tempers T361 and T861 formerly designated T36 and T86, respectively.
- ⑫ Material in this temper, 0.750 inch and thicker, when tested in accordance with ASTM G47 in the short transverse direction at a stress level of 75 percent of the specified minimum yield strength, will exhibit no evidence of stress corrosion cracking. Capability of individual lots to resist stress corrosion is determined by testing the previously selected tensile test sample in accordance with the applicable lot acceptance criteria outlined on pages 6-7 and 6-8.
- ⑬ Material in this temper, when tested in accordance with ASTM G34, will exhibit exfoliation less than that shown in Photo EB, Figure 2, of ASTM G34.

- Also, material 0.750 inch and thicker, when tested in accordance with ASTM G47 in the short transverse direction of stress level of 25 ksi, will exhibit no evidence of stress corrosion cracking. Capability of individual lots to resist exfoliation corrosion and stress corrosion cracking is determined by testing the previously selected tensile test sample in accordance with the applicable lot acceptance criteria outlined on pages 6-7 and 6-8.
- ⑭ Processes such as flattening, leveling, or straightening coiled products subsequent to shipment by the producer may alter the mechanical properties of the metal (refer to Certification, Section 4).
- ⑮ Applicable only to 1.500 inch and greater thickness.
- ⑯ See Table 6.6 for fracture toughness limits.
- ⑰ T7451 temper, although not previously registered, has appeared in the literature and in some specifications as T73651.
- ⑱ Material in this temper, 0.750 inch and thicker, when tested in accordance with ASTM G47 in the short transverse direction at a stress level of 35 ksi, will exhibit no evidence of stress corrosion cracking. Capability of individual lots to resist stress corrosion is determined by testing the previously selected tensile test sample in accordance with the applicable lot acceptance criteria outlined on pages 6-7 and 6-8.
- ⑲ Material in this temper, 0.750 inch and thicker, when tested in accordance with ASTM G47 in the short transverse direction at a stress level of 25 ksi, will exhibit no evidence of stress corrosion cracking. Capability of individual lots to resist stress corrosion is determined by testing the previously selected tensile test sample in accordance with the applicable lot acceptance criteria outlined on pages 6-7 and 6-8.
- ⑳ Material in this temper, when tested at any plane in accordance with ASTM G34, will exhibit exfoliation less than that shown in Photo EB, Figure 2, of ASTM G34. Capability of individual lots to resist exfoliation corrosion and stress corrosion cracking is determined by testing the previously selected tensile test sample in accordance with the applicable lot acceptance criteria outlined on pages 6-7 and 6-8.
- ㉑ Material in this temper, when tested at 1/10 plane in accordance with ASTM G34, will exhibit exfoliation less than that shown in Photo EB, Figure 2, of ASTM G34. Capability of individual lots to resist exfoliation corrosion and stress corrosion cracking is determined by testing the previously selected tensile test sample in accordance with the applicable lot acceptance criteria outlined on pages 6-7 through 6-10.
- ㉒ Applies to 1.500 in. only.

TABLE 7.7a Sheet and Plate Thickness Tolerances ① (Applicable to All Alloys Not Included in the Aerospace Alloys Table 7.7b or Not Specified for Aerospace Applications)

NOTE: ALSO APPLICABLE TO ALLOYS WHEN SUPPLIED AS ALCLAD.

SPECIFIED THICKNESS, in.		SPECIFIED WIDTH—in.							
		Up thru 39.37	Over 39.37 Thru 59.06	Over 59.06 Thru 78.74	Over 78.74 Thru 98.43	Over 98.43 Thru 118.11	Over 118.11 Thru 137.80	Over 137.80 Thru 157.48	Over 157.48 Thru 177.17
Over	Thru	TOLERANCES—in. plus and minus							
0.0059	0.010	0.0010	0.0015	..	..	..	..	..	..
0.010	0.016	0.0010	0.0015	..	..	..	..	..	..
0.016	0.025	0.0015	0.0020	0.0030	0.0035	..	..	..	..
0.025	0.032	0.0020	0.0025	0.0035	0.0040	..	..	..	..
0.032	0.039	0.0020	0.0030	0.0035	0.0045	0.006	..	..	..
0.039	0.047	0.0025	0.0035	0.0045	0.006	0.007	0.008	..	..
0.047	0.063	0.0030	0.0035	0.0050	0.006	0.007	0.009	..	..
0.063	0.079	0.0035	0.0040	0.006	0.007	0.008	0.010	..	..
0.079	0.098	0.0035	0.0045	0.006	0.007	0.009	0.011	..	..
0.098	0.126	0.0045	0.006	0.007	0.009	0.011	0.013	..	..
0.126	0.158	0.006	0.007	0.009	0.011	0.013	0.015	..	..
0.158	0.197	0.007	0.009	0.011	0.013	0.015	0.018	..	..
0.197	0.248	0.009	0.011	0.013	0.015	0.018	0.022	0.027	..
0.248	0.315	0.012	0.014	0.015	0.018	0.022	0.027	0.035	0.043
0.315	0.394	0.015	0.017	0.020	0.023	0.027	0.033	0.041	0.051
0.394	0.630	0.023	0.023	0.027	0.032	0.035	0.043	0.053	0.065
0.630	0.984	0.031	0.031	0.037	0.043	0.047	0.058	0.070	0.085
0.984	1.575	0.039	0.039	0.047	0.055	0.065	0.075	0.090	0.105
1.575	2.362	0.055	0.055	0.060	0.070	0.085	0.100	0.115	..
2.362	3.150	0.075	0.075	0.085	0.100	0.105	0.125	..	..
3.150	3.937	0.100	0.100	0.115	0.125	0.130	0.160	..	..
3.937	6.299	0.130	0.130	0.145	0.165	..	..	..	..
6.300	8.000	0.160	0.160	0.160	0.165	..	..	..	..

TABLE 7.7b Sheet and Plate Thickness Tolerances ① (Applicable to All Alloys Specified for Aerospace Applications)

(INCLUDES AEROSPACE ALLOYS 2014, 2024, 2124, 2219, 2324, 2419, 7050, 7075, 7150, 7178 and 7475)

NOTE: ALSO APPLICABLE TO ALLOYS WHEN SUPPLIED AS ALCLAD.

SPECIFIED THICKNESS		SPECIFIED WIDTH—in.											
		Up thru 39.37	Over 39.37 thru 47.24	Over 47.24 thru 55.12	Over 55.12 thru 59.06	Over 59.06 thru 70.87	Over 70.87 thru 78.74	Over 78.74 thru 86.61	Over 86.61 thru 98.43	Over 98.43 thru 118.11	Over 118.11 thru 137.80	Over 137.80 thru 157.48	Over 157.48 thru 177.17
Over	Thru	TOLERANCE—in. plus and minus											
0.0059	0.010	0.0010	0.0020	0.0020	0.0020	..	..	..	..	..	..	..	..
0.010	0.016	0.0015	0.0025	0.0025	0.0025	..	..	..	..	..	..	..	..
0.016	0.025	0.0015	0.0025	0.0025	0.0025	..	..	..	..	..	..	..	..
0.025	0.032	0.0015	0.0015	0.0020	0.0030	0.0030	..	..	..	..	..	..	..
0.032	0.039	0.0015	0.0015	0.0020	0.0030	0.0030	0.0035	0.0035	0.007	..	..	..	..
0.039	0.047	0.0020	0.0020	0.0020	0.0030	0.0030	0.0035	0.0035	0.008	0.010	0.011	..	..
0.047	0.063	0.0020	0.0020	0.0030	0.0030	0.0030	0.0035	0.0035	0.009	0.011	0.013	..	..
0.063	0.079	0.0020	0.0020	0.0030	0.0035	0.0035	0.0035	0.0035	0.010	0.013	0.015	..	..
0.079	0.098	0.0025	0.0025	0.0035	0.0040	0.0040	0.0045	0.0045	0.011	0.015	0.018	..	..
0.098	0.126	0.0035	0.0035	0.0035	0.0045	0.0045	0.0045	0.0045	0.013	0.016	0.020	..	..
0.126	0.158	0.0040	0.0040	0.0045	0.007	0.007	0.009	0.009	0.015	0.018	0.022	..	..
0.158	0.197	0.006	0.007	0.007	0.009	0.009	0.011	0.011	0.018	0.022	0.026	..	..
0.197	0.248	0.009	0.012	0.012	0.012	0.017	0.017	0.021	0.021	0.025	0.029	..	..
0.248	0.315	0.012	0.015	0.015	0.015	0.019	0.019	0.024	0.024	0.029	0.033	0.041	0.051
0.315	0.394	0.017	0.018	0.018	0.018	0.022	0.022	0.028	0.028	0.033	0.039	0.047	0.059
0.394	0.630	0.023	0.023	0.023	0.023	0.028	0.028	0.033	0.033	0.039	0.047	0.059	0.070
0.630	0.984	0.031	0.031	0.031	0.031	0.037	0.037	0.043	0.043	0.051	0.060	0.070	0.085
0.984	1.575	0.039	0.039	0.039	0.039	0.047	0.047	0.055	0.055	0.065	0.075	0.090	0.105
1.575	2.362	0.055	0.055	0.055	0.055	0.060	0.060	0.070	0.070	0.090	0.100	0.115	..
2.362	3.150	0.075	0.075	0.075	0.075	0.085	0.085	0.100	0.100	0.110	0.125	..	..
3.150	3.937	0.100	0.100	0.100	0.100	0.115	0.115	0.130	0.130	0.150	0.160	..	..
3.937	6.299	0.130	0.130	0.130	0.130	0.145	0.145	0.165	0.165	..	..	..	..
6.300	8.000	0.160	0.160	0.160	0.160	0.160	0.160	0.165	0.165	..	..	..	..

Footnotes for Tables 7.7a and 7.7b

Note: Capability to provide tighter tolerances may vary with supplier.

① When a dimension tolerance is specified other than as equal bilateral tolerance, the value of the standard tolerance is that which applies to the mean of the maximum and minimum dimension permissible under the tolerance for the dimension under consideration.

TABLE 7.8 Width Tolerances—Sheared Flat Sheet and Plate

SPECIFIED THICKNESS in.	SPECIFIED WIDTH—in.					
	Up thru 6	Over 6 thru 24	Over 24 thru 60	Over 60 thru 96	Over 96 thru 132	Over 132 thru 168
	TOLERANCES ②—in.					
0.006–0.124	$\pm 1/16$	$\pm 3/32$	$\pm 1/8$	$\pm 1/8$	$\pm 5/32$	..
0.125–0.249	$\pm 3/32$	$\pm 3/32$	$\pm 1/8$	$\pm 3/32$	$\pm 3/16$	..
0.250–0.499	$+1/4$	$+5/16$	$+3/8$	$+3/8$	$+7/16$	$+1/2$

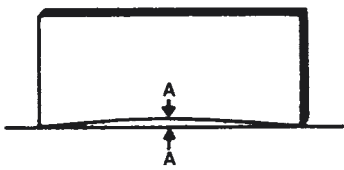
TABLE 7.9 Length Tolerances—Sheared Flat Sheet and Plate

SPECIFIED THICKNESS in.	SPECIFIED LENGTH—in.							
	Up thru 30	Over 30 thru 60	Over 60 thru 120	Over 120 thru 240	Over 240 thru 360	Over 360 thru 480	Over 480 thru 600	Over 600 thru 720
	TOLERANCES ②—in.							
0.006–0.124	$\pm 1/16$	$\pm 3/32$	$\pm 1/8$	$\pm 5/32$	$\pm 3/16$	$\pm 7/32$	$\pm 9/32$	..
0.125–0.249	$\pm 3/32$	$\pm 3/32$	$\pm 1/8$	$\pm 5/32$	$\pm 7/32$	$\pm 1/4$	$\pm 3/16$	..
0.250–8.000	$+1/4$	$+3/8$	$+7/16$	$+1/2$	$+9/16$	$+5/8$	$+11/16$	$+3/4$

TABLE 7.10 Width and Length Tolerances—Sawed Flat Sheet and Plate

SPECIFIED THICKNESS in.	SPECIFIED LENGTH—in.							
	Up thru 30	Over 30 thru 60	Over 60 thru 120	Over 120 thru 240	Over 240 thru 360	Over 360 thru 480	Over 480 thru 600	Over 600 thru 720
	TOLERANCES ②—in.							
0.080–0.249	$\pm 1/8$	$\pm 1/8$	$\pm 3/16$	$\pm 1/4$	$\pm 1/4$	$\pm 5/16$	$\pm 3/8$	$\pm 7/16$
0.250–8.000	$+1/4$	$+5/16$	$+3/8$	$+1/2$	$+9/16$	$+5/8$	$+3/4$	$+7/8$

TABLE 7.13 Lateral Bow Tolerances—Flat Sheet and Plate

SPECIFIED THICKNESS in.	SPECIFIED WIDTH in.	ALLOWABLE DEVIATION OF A SIDE EDGE FROM A STRAIGHT LINE							
									
		Maximum allowable value of AA							
		SPECIFIED LENGTH—in.							
		Up thru 60	Over 60 thru 90	Over 90 thru 120	Over 120 thru 150	Over 150 thru 180	Over 180 thru 210	Over 210 thru 240	
		TOLERANCE—in.							
0.006–0.125	Up thru 4	0.250	0.563	1.000	1.563	2.250	3.000	4.000 ⑤	
	Over 4 thru 10	0.094	0.219	0.375	0.563	0.875	1.156	1.500 ⑤	
	Over 10 thru 35	0.063	0.125	0.188	0.250	0.375	0.500	0.750 ⑤	
	Over 35	0.032	0.063	0.125	0.188	0.250	0.375	0.500 ⑤	
0.126–0.249	Over 4 thru 15	0.063	0.125	0.250	0.375	0.563	0.750	1.000 ⑤	
	Over 15	0.032	0.063	0.125	0.188	0.250	0.375	0.500 ⑤	
0.250–8.000	Up thru 10	0.250	0.563	1.000	1.563	2.250	3.000	4.000 ⑤	
	Over 10 thru 18	0.063	0.125	0.250	0.406	0.594	0.781	1.000 ⑤	
	Over 18	0.032	0.094	0.125	0.219	0.312	0.438	0.562 ⑤	

For all numbered footnotes, see page KA-SP-AA13-1.09

TABLE 7.14 Squareness Tolerances—Flat Sheet and Plate

SPECIFIED LENGTH ft.	SPECIFIED WIDTH—ft.	
	Up thru 3	Over 3
	ALLOWABLE DIFFERENCE IN LENGTH OF DIAGONALS ④ —Inches	
	Maximum difference between AA and BB	
Up thru 12	$\frac{3}{32} \times \text{width, ft } ③$	$\frac{5}{64} \times \text{width, ft } ③$
Over 12	$\frac{9}{64} \times \text{width, ft } ③$	$\frac{7}{64} \times \text{width, ft } ③$

Footnotes for Tables 7.8 through 7.14

- ① When a dimension tolerance is specified other than as an equal bilateral tolerance, the maximum value of the standard tolerance is that which applies to the mean of the maximum and minimum dimensions permissible under the tolerance for the dimension under consideration.
- ② Tolerances applicable at ambient mill temperatures. A change in dimension of 0.013 in. per 100 in. per 10°F must be recognized.
- ③ If specified width is other than an exact multiple of 12 in., tolerance is determined by using the next largest exact multiple. For example, if specified width is 53 in. and specified length is 72 in., the tolerance is $\frac{5}{64} \text{ in.} \times 5 = \frac{25}{64} \text{ in.}$ This result is then rounded to $\frac{7}{16} \text{ in.}$ in accordance with footnote ④.
- ④ Use values for calculating only. Round result upward to nearest $\frac{1}{16} \text{ in.}$
- ⑤ Also applicable to any 240-inch increment of longer sheet or plate.

TABLE 7.17 Flatness Tolerances—Flat Sheet ②

Alloy (Includes Alclads)	Specified Thickness in.	Longitudinal or Transverse Distance (ft.) Center to Center of Buckles or Edge Waves ③				
		Up thru 2	Over 2 thru 3	Over 3 thru 4	Over 4 thru 6	Over 6
		TOLERANCES, in. ④ ⑤ ⑥				
1060, 1100, 1350, 3003, 3005, 3105, 5005, 5050, 5X57	0.020 thru 0.064	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{3}{16}$	$\frac{5}{16}$	$\frac{3}{8}$
	0.065 thru 0.249	$\frac{1}{6}$	$\frac{3}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$
3004, 5052, 5083, 5086, 5252, 5X54, 5456, 5652, brazing sheet, and all heat treatable alloys	0.020 thru 0.064	$\frac{3}{16}$	$\frac{3}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$
	0.065 thru 0.249	$\frac{3}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{9}{16}$

- ① When a dimension tolerance is specified other than as an equal bilateral tolerance, the maximum value of the standard tolerance is that which applies to the mean of the maximum and minimum dimensions permissible under the tolerance for the dimension under consideration.
- ② Not applicable to cut-to-length sheet, panel flat sheet, coiled sheet, or sheet over 60 in. wide. Flatness tolerances, including coil set flatness tolerances, for these excluded products, should be as agreed upon in advance between producer and purchaser. (See Section 5, Terminology, for a definition of Sheet, Coiled Cut-to-Length).
- ③ Also applicable to overall length or width of sheet if only one longitudinal and/or transverse buckle or edge wave is present.
- ④ Allowable deviation from flat with the sheet positioned on flat horizontal surface to minimize deviation.
- ⑤ Not applicable to O, F and HX8 and harder tempers.
- ⑥ Not applicable to end or corner turnup.

TABLE 7.18 Flatness Tolerances—Sawed or Sheared Plate

LONGITUDINAL FLATNESS

SPECIFIED THICKNESS, in.	TOLERANCE ① in.—Allowable Deviation from Flat	
	TX51 tempers ②	Other than TX51 tempers ② ⑦
0.250–3.000	3/16 in any 6 ft ③	1/4 in any 6 ft or less
3.001–8.000	1/8 in any 6 ft or less	1/8 in any 6 ft or less

TRANSVERSE FLATNESS

SPECIFIED THICKNESS, in.	TOLERANCE ① in.—Allowable Deviation from Flat				Widths 2 ft and less
	Widths over 4 ft thru 6 ft ④		Widths over 2 ft thru 4 ft		
	TX51 tempers ②	Other than TX51 tempers ② ⑦	TX51 tempers ②	Other than TX51 tempers ② ⑦	
0.250–0.624	3/8	1/2	5/16	3/8	Only short-span flatness tolerance applies
0.625–1.500	5/16	3/8	3/16	1/4	
1.501–3.000	3/16	1/4	3/16	3/16	
3.001–8.000	1/8	1/4	1/8	3/16	

SHORT-SPAN FLATNESS ⑤

SPECIFIED THICKNESS, in.	TOLERANCE ⑥ in.—Allowable Deviation from Flat	
	TX51 tempers ②	Other than TX51 tempers ② ⑦
0.250–0.624	.100	.125
0.625–8.000	.075	.090

- ① As measured with plate resting on a flat surface concave side upward, using a straightedge and a feeler gauge, dial gauge or scale.
- ② TX51 is a general designation for the following stress-relieved tempers: T351, T451, T651, T851, T7351 and T7651.
- ③ For pieces ordered to less than 6 ft length, the tolerance is 1/8 in. for the total length.
- ④ For widths over 6 ft, these tolerances apply for any 6 ft of total width.
- ⑤ Short-span flatness is the deviation from flat over full span for spans 2 ft and less.
- ⑥ As measured with the plate resting on a flat surface.
- ⑦ Not applicable to O, F, and HX8 and harder tempers.

TABLE 7.35 Mechanical Property Limits ① for Tread Plate

ALLOY AND TEMPER	SPECIFIED THICKNESS ② in.	TENSILE STRENGTH—ksi				ELONGATION percent min. in 2 in. or 4D ③
		ULTIMATE		YIELD		
		min.	max.	min.	max.	
6061-O	0.100–0.128	..	22.0	..	12.0	16
	0.129–0.499	..	22.0	..	12.0	18
	0.500–0.625	..	22.0	..	..	18
6061-T4	0.100–0.249	30.0	..	16.0	..	14
	0.250–0.625	30.0	..	16.0	..	16
6061-T42 ④	0.100–0.249	30.0	..	14.0	..	14
	0.250–0.625	30.0	..	14.0	..	16
6061-T6 and T62 ④	0.100–0.188	42.0	..	35.0	..	6
	0.189–0.249	42.0	..	35.0	..	8
	0.250–0.499	42.0	..	35.0	..	10
	0.500–0.625	42.0	..	35.0	..	9

- ① The data base and criteria upon which these mechanical property limits are established are outlined on page 6-1 under "Mechanical Properties."
- ② For sheet and plate under 1/2 inch in thickness, the standard 2-inch-wide tension test specimen is used. The raised figures of the pattern are machined off before testing.
- ③ D represents specimen diameter.
- ④ This temper is not available from the material producer. These properties can usually be obtained by the user, when the material is properly solution heat treated or solution and precipitation heat treated from the O (annealed) or F (as fabricated) temper. These properties also apply to samples of material in the O or F tempers that are solution heat treated or solution and precipitation treated by the producer to determine that the material will respond to proper heat treatment. Properties attained by the user, however, may be lower than those listed if the material has been formed or otherwise cold or hot worked, particularly in the annealed temper, prior to solution heat treatment.

**TABLE 7.37 Thickness Tolerances—
Tread Plate**

Specified ^① Thickness—in.	Tolerances—in.	
	Plus ^②	Minus
0.100	0.008	0.012
0.125	0.010	0.015
0.156	0.011	0.019
0.188	0.013	0.023
0.250	0.018	0.030
0.375	0.025	0.045
0.500	0.035	0.060
0.625	0.044	0.075

① Specified thickness does not include height of pattern.

② In case of dispute, allowed plus tolerance shall be determined by weight. The allowed deviation from nominal weight shall not exceed plus 8 percent.

**TABLE 7.42 Lateral Bow ^③ Tolerances—
Tread Plate**

SPECIFIED WIDTH in.	TOLERANCE—in.
	ALLOWABLE DEVIATION OF A SIDE EDGE FROM A STRAIGHT LINE
	SPECIFIED THICKNESS—in.
	0.100–0.625
Up thru 4	1 in any 10 ft.
Over 4 thru 72	1/8 in any 10 ft.

**TABLE 7.43 Squareness Tolerances ^⑤—
Tread Plate**

SPECIFIED LENGTH in.	TOLERANCE—in.
	ALLOWABLE DIFFERENCE IN LENGTH OF DIAGONALS
Up thru 144	3/8
Over 144 thru 240	7/16
Over 240	1/2

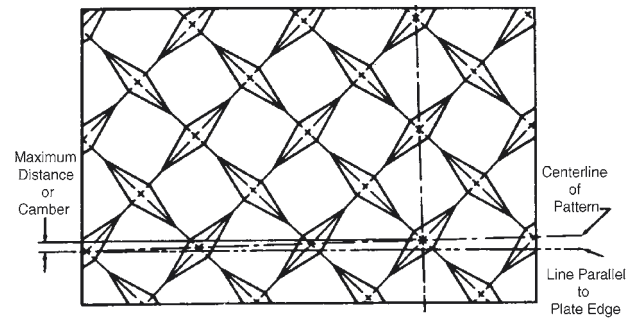
Footnotes for Tables 7.41 through 7.43

③ Applicable only to lengths up through 240 inches.

④ The camber of a pattern line is the maximum distance between the center of any figure in a pattern line and a line parallel with the edge of the plate that passes through the center of the figure in the same pattern line nearest to the edge of the floor plate.

⑤ Not resquared.

**TABLE 7.41 Camber of Pattern Line ^④
Tolerances—Tread Plate**



SPECIFIED LENGTH in.	TOLERANCE—in.	
	SPECIFIED WIDTH—in.	
	Up thru 48	Over 48 thru 72
Up thru 24	1/8	1/8
Over 24 thru 72	1/2	1/2
Over 72 thru 144	3/4	1
Over 144	1	1 1/2