

Somers Thin Strip Stainless Steel Alloy Guide

AUSTENITIC STAINLESS STEEL												FERRITIC STAINLESS STEEL			MARTENSITIC STAINLESS STEEL		GRADE STAINLESS STEEL	
Alloy No.	201	202	301	302	304	304L ⁶	305	316	316L ⁶	321 ⁶	347 ⁶	405	409	430	410 ⁶	420 ⁶	PH17-7	
ASTM	A666	A666	A666	A666	A666	A666	A167	A666	A666	A167	S6721	A176	A176	A176	A167	A176	A693	
Military Spec. No.			S5059	S5059	S5059	S4043		S5059	S524	S510	S6721						S25043	
AMS Spec. No.			5517-5519	5516	5513	5511	5514	5507	5507	5512	5512			5503	5504	5506	5528	
NOMINAL COMPOSITION	C	0.15	0.15	0.15	0.08	0.03	0.12	0.08	0.03	0.08	0.08	0.08	0.08	0.12	0.15	0.35	0.09	
	Cr	17.00	18.00	17.00	18.00	19.00	18.00	17.00	17.00	18.00	18.00	12.50	11.00	16.00	12.60	13.00	17.00	
	Ni	4.50	5.50	7.00	9.00	9.25	10.00	11.75	12.00	12.00	10.50	11.00	.60 Max	.50 Max	.75 Max	.75 Max	.75 Max	7.00
	Mn	6.50	8.75	2 Max	2 Max	2 Max	2 Max	2 Max	2 Max	2 Max	2 Max	2 Max	1 Max	1 Max	1 Max	1 Max	1 Max	1 Max
	Al																	
	Mo							2.50	2.50									
	N	.25 Max	.25 Max			.10 Max	.10 Max				.10 Max	Cb + TA		Ti6xC				
	Other										Ti5X(C+N) Min	10XC Min		.75 Max				1.10
										.70 Max	1.00 Max							
Physical Properties																		
Density (lbs. per cu. in.)	0.287	0.287	0.290	0.287	0.287	0.287	0.29	0.286	0.286	0.285	0.290	0.280	0.280	0.278	0.278	0.276	0.262	
Mod. of Elasticity (X 10 ⁶ PSI)	28.6	28.6	28	28	28	28	28	28	28	28	28	29	29	29	29	29	29.5	
Electrical Resistivity ¹	423	427	432	432	432	432	432	444	444	432	436	360	360	360	342	330	480	
Thermal Conductivity ²	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.3	9.3	9.3	9.2	---	---	13.1	14.4	14.4	9.5	
Coefficient of Thermal Expansion	8.7	9.7	9.4	9.6	9.6	9.6	9.6	8.9	8.9	9.3	9.3	6	6	5.8	5.5	5.7	6.1	
Cost Factor ⁴	0.87	0.95	0.95	1	1	1.13	1.39	1.56	1.68	1.35	1.62	0.88	---	0.73	0.76	---	2.18	
Tensile Strength (x 1000 psi)																		
Annealed	95 Min	90 Min	90-115	75-110	75-100	70-100	70-100	75-100	70-100	75-110	75-115	60 Min	55 Min	65 Min	65-95	100 Max	150 Max	
1/8 Hard	100-125	125-150	100-125	100-125	100-125	100-125	100-125	100-125	100-125									
1/4 Hard	125-150		125-150	125-150	125-150	125-150	125-150	125-150	125-150									
1/2 Hard	150-175		150-175	150-175	150-175	150-175	150-175	150-175	150-175									
3/4 Hard	175-200		175-200	175-200	175-200	175-200	175-200	175-200	175-200									
Full Hard	185 Min		185 Min	185 Min	185 Min	185 Min	185 Min	185 Min	185 Min									
Spring	200 Min		200 Min	200 Min	200 Min	200 Min	200 Min	200 Min	200 Min								200 Min	
SPL Spring			280 Min ⁷															
Yield Strength (x 1000 psi @ 0.2% offset)																		
Annealed	45 Min	45 Min	30 Min	30-60	30 Min	25 Min	25 Min	30 Min	25 Min	30 Min	30 Min	25 Min	30 Min	30 Min	30 Min		65 Max	
1/8 Hard	55 Min		55 Min	55 Min	55 Min	55 Min	55 Min	55 Min	55 Min									
1/4 Hard	75 Min	75 Min	75 Min	75 Min	75 Min	75 Min	75 Min	75 Min	75 Min									
1/2 Hard	110 Min		110 Min	110 Min	110 Min	110 Min	110 Min	110 Min	110 Min									
3/4 Hard	135 Min		135 Min	135 Min	135 Min	135 Min	135 Min	135 Min	135 Min									
Full Hard	140 Min		140 Min	140 Min	140 Min	140 Min	140 Min	140 Min	140 Min									
Spring			185 Min															
SPL Spring			250 Min ⁷														175 Max	
Elongation (% in 2 inches)																		
Annealed	40 Min	40 Min	40 Min	40 Min	40 Min	40 Min	40 Min	40 Min	40 Min	40 Min	40 Min	20 Min	20 Min	20 Min	20 Min	12 Min	20 Min	
1/8 Hard	40 Min		40 Min	35 Min	35 Min	35 Min	20 Min	30 Min	25 Min									
1/4 Hard	25 Min	12 Min	25 Min	10 Min	10 Min	8 Min	6 Min	10 Min	8 Min									
1/2 Hard	15 Min		15 Min	9 Min	6 Min	5 Min		6 Min	5 Min									
3/4 Hard	10 Min		10 Min	5 Min	3 Min	2 Min		3 Min	2 Min									
Full Hard	8 Min		8 Min	3 Min	1 Min	1 Min		1 Min	1 Min									
Spring	1 Min		1 Min	1 Min	1 Nom	1 Nom												
SPL Spring			1 Nom ⁷														1 Min	

- 1 OHMS/CIR. MIL FT.
- 2 BTU PER SQ. FT. PER FT. PER °F @ 68 °F.
- 3 INCHES PER INCH X 10⁻⁶ FROM 32°F - 212°F.
- 4 BASED ON ALLOY 304, BASE PRICE. NO EXTRAS FOR GAUGE, TEMPER, WIDTH, QUANTITY OR TOLERANCE INCLUDED.
- 5 TYPICAL HEAT TREATED PROPERTIES OF MARTENSITIC AND PH STAINLESS STEELS. (HEAT TREATMENT NOT)
- 6 GENERALLY SOLD IN THE ANNEALED CONDITION ONLY.
- 7 SPECIAL ROLLED SPRING PROPERTIES

Note: The above data and information is presented for design purposes and is not necessarily intended for use as purchasing specifications.