BASE ALLOYS	FILLER ALLOYS	1060 1070 1080 1350						1100						2014 2036						2219 2519						3003 ALCLAD 3003						3004						5005 5050						5052 5652						5083 5456						5086 5056						511.0 512.0 513.0 514.0 535.0 5154 5254						5454 5754						6005 6005A 6063 6082 6101 6151 6201 6351 6951						6061 6070						7005 7021 7039 7046 7146 710.0 711.0						413.0 443.0 444.0 356.0 A356.0 A357.0 359.0						319.0 333.0 354.0 355.0 C355.0 380.0						
Characteristics		W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	W	S	D	C	T	M	
319.0 333.0 354.0 355.0 C355.0 380.0	2319													B	A	A	A	A	A	B	A	A	A	A	A																																																														B	A	A	A	A	A	2319
	4043/4047	B	A	A	A	A	A	B	A	A	A	A	A	C	C	B	C	A	A	C	C	B	C	A	A	B	B	A	A	A	A	B	B	A	A	A	A	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		A	A	A	A	A		A	A	A	A	A	A	A	B	B	A	A	A	A	B	B	A	A	A	A	B	B	A	A	A	A	B	B	A	A	A	A							4043/4047
413.0 443.0 444.0 356.0 A356.0 A357.0 359.0	4043/4047	A	A	A	A	A	A	A	A	A	A	A	A	B	B	A	A	A	A	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	A	A	A	A																										A	B	A	A	A	A	A	B	A	A	A	A	A	B	B	A	A	A	A	B	A	A	A	A	4043/4047						
7005 7021 7039 7046 7146 710.0 711.0	4043/4047	A	A	C	A	A		A	A	C	A	A		B	B	A	A	A		B	B	A	A	A		A	B	C	A	A		A	D	C	B	A		A	B	C	B	A		B	D	C	B	A																										A	D	C	B	A		A	D	C	B	A		B	D	C	B	A		4043/4047												
	5087	B	A	B	A		A	B	A	B	A		A													B	A	B	A		A	B	A	B	A		A	B	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	5087												
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	5356	B	A	A	A		A	B	A	A	A		A													B	A	A	A		A	B	B	A	A		A	B	A	A	A		A	A	B	A	A		A	A	B	A	A		A	A	B	A	A		A	A	B	A	A		A	A	B	A	A		A	A	B	A	A		A	A	B	A	A		A	A	B	A	A		A	5356												
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	5556A	B	A	B	A		A	B	A	B	A		A													B	A	B	A		A	B	A	B	A		A	B	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	5556A												
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6061 6070	4043/4047	A	A	C	A	A		A	A	C	A	A		B	B	A	A	A		B	B	A	A	A		A	B	C	A	A		A	D	C	A	A		A	B	C	A	A		A	D	C	A	A																										A	C	B	A	A		A	C	B	A	A		4043/4047																			
	4643 (1)																																																																									A	C	B	A	A		A	C	B	A	A		4643 (1)																			
	5087	B	A	B		A		B	A	B			A													B	A	B			A	B	A	B			A	B	A	B			A	B	A	B	C		B	A	A	B	A		A	A	A	B	A		A	B	A	B	C		B	B	A	B	C		A	B	A	A	C		A	B	A	A	C		B	5087																			
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	5356	B	A	A			A	B	A	A			A													B	A	A			A	B	B	A			A	B	A	A			A	B	B	A	C		A	A	B	A	A		A	A	B	A	A		A	B	B	A	C		A	B	B	A	C		A	B	A	A	C		A	B	B	A	C		A	5356																			
	5554																																											C	C	A	B	A	B	B	C	A	A		A	B	C	A	A		A	C	C	A	B		B	C	C	A	A	A	A	C	B	A	B	B	A	C	B	A	B	B	B	5554																			
	5556	B	A	B			A	B	A	B			A													B	A	B			A	B	A	B			A	B	A	B			A	B	A	B	C		B	A	A	B	A		A	A	A	B	A		A	B	A	B	C		B	B	A	B	C		A	B	A	A	C		A	B	A	A	C		B	5556																			
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	5754																																											C	C	A	B	A	B	B	C	A	A		A	B	C	A	A		A	C	C	A	B		B	C	C	A	A	A	A	C	B	A	B	B	A	C	B	A	B	B	B	5754																			
6005, 6005A, 6063, 6082 6101, 6151, 6201,6351, 6951	4043/4047	A	A	C	A	A		A	A	C	A	A		B	B	A	A	A		B	B	A	A	A		A	B	C	A	A		A	D	C	A	A		A	B	C	A	A		A	D	C	A	A		A	B	C	A			A	B	C	A			A	B	C	A			A	B	C	B	A		A	C	B	A	A		4043/4047																									
	4643 (1)																																																																															A	C	B	A	A		4643 (1)																									
	5087	B	A	B			A	B	A	B			A													B	A	B			A	B	A	B			A	B	A	B			A	B	A	B	C		B	A	A	B	A		A	A	A	B	A		A	B	A	B	C		A	B	A	B	C		A	B	A	A	C		A	5087																									
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	5556	B	A	B			A	B	A	B			A													B	A	B			A	B	A	B			A	B	A	B			A	B	A	B	C		B	A	A	B	A		A	A	A	B	A		A	B	A	B	C		A	B	A	B	C		A	B	A	A	C		A	5556																									
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	5754																																											C	C	A	B	A	B	B	A	A	A		A	B	A	A	A		A	C	A	A	B		A	C	A	A	A	A	A	C	B	A	B	B	A	5754																									
5454 5754	5087	B	A	B	B		A	B	A	B	B		A													B	A	B	B		A	B	A	B	B		A	B	A	B	B		A	A	A	A	B		A	A	A	B	B		A	A	A	B	B		A	A	A	B	B		A	A	A	B	B		A	5087																													
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	5554	C	A	A	A	A	A	C	A	A	A	A	A													C	A	A	A	A	A	C	C	A	A	A	A	C	A	A	A	A	A	C	C	A	A	A	A	B	C	A	A		A	B	C	A	A		A	B	C	A	A		A	B	C	A	A	A	A	5554																													
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511.0, 512.0, 513.0, 514.0, 535.0 5154, 5254	5087	B	A	B	B		A	B	A	B	B		A													B	A	B	B		A	B	A	B	B		A	B	A	B	B		A	A	A	B	B		B	A	A	B	A		A	A	A	B	A		A	A	A	B	B		B	5087																																			
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	5554																																											C	C	A	A		A													5554																																									
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	5754																																											C	C	A	A		A													5754																																									
5083, 5456	5087	A	A	B	A		A	A	A	B	A		A													A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	A	B	A		A	A	(Z)	B	A		A	5087																																															
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	5754																																											C	C	A	A		A							5754																																															
5052, 5652	4043/4047	A	B	C	A	A		A	B	C	A	A														A	B	C	A	A		A	B	C	A	A		A	B	C	A	A		A	D	C	B	A		4043/4047																																																					
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	5754																																											C	C	A	A	A	B	5754																																																					
5005, 5050	1100	C	B	A	A	A	A	C	B	A	A	A	A													C	C	A	A	A	A							B		A	A	A	A	1100																																																															
	4043/4047	A	A	C	A	A		A	A	C	A	A														A	B	C	A	A		A	B	C	A	A		A	B	D	A	A		4043/4047																																																															
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	5356	C	A	B			B	C	A	B			B													C	A	B	C		B	B	A	A			A	B	A	B			B	5356																																																														
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	5556A	C	A	B			B	C	A	B			B													C	A	B	C		B	B	A	B			A	B	A	C			B	5556A																																																														
3004	1100	D	B	A	A	A	A	D	B	A	A	A	A													C	C	A	A	A	A							1100																																																																													
	4043/4047	A	A	C	A	A		A	A	C	A	A														A	B	C	A	A		A	B	D	A	A		4043/4047																																																																												
	5087	C	A	B			B	C	A	B			B													C		B	C		A	B	A	C	C		A	5087																																																																												
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How to Use

1. Select base alloys to be joined.
2. Find the block where the column and row intersect.
3. This block contains horizontal rows of letters (A, B, C or D) representative of the alloy directly across from them in the filler alloy box at the end of each row. The letters in each line give the A-to-D rating of the characteristics listed at the top of each column – W, S, D, C, T and M (see Legend at right for explanation of each letter).
4. Analyze the weld characteristics afforded by each filler alloy. You will find that you can “trade off” one characteristic for another until you find the filler that best meets your needs.

Example

When joining base alloys 3003 and 1100, find the intersecting block. Note that filler alloy 1100 provides an (A) rating for ductility (D), corrosion resistance (C), performance at elevated temperatures (T), and color match after anodizing (M), and a (B) rating for ease of welding (W) and strength (S). However, if ease of welding and shear strength are important, and ductility and color match can be sacrificed slightly, then filler alloy 4043 can be used.

SYMBOL	CHARCTERISTIC
W	Propensity for weld cracking. “A” indicates little tendency for weld cracking. “D” indicates severe tendency for weld cracking
S	Shear strength - applicable particularly to fillet welds.
D	Ductility of the finished weld
C	Resistance to corrosion in ambient temperature fresh or salt water
T	Recommended for service at Suitability for long term expoure to temperatures above 150 degrees F
M	Color match between the weld and the parent material after anodizing
A, B, C, & D are relative ratings in decreasing order of merit. The ratings have relative meaning only within a given block.	

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