

Application Number: 00062227

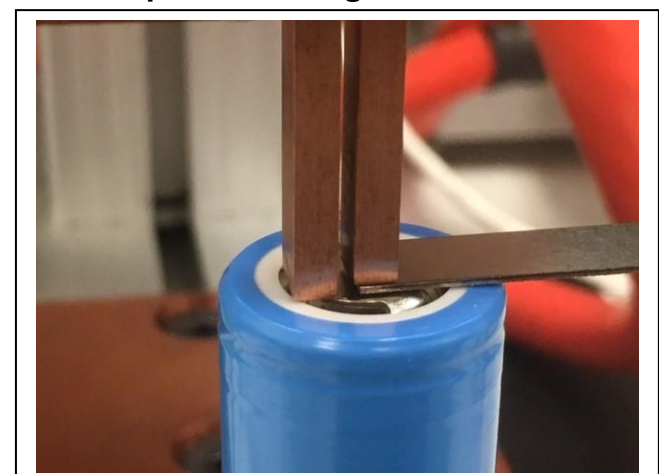
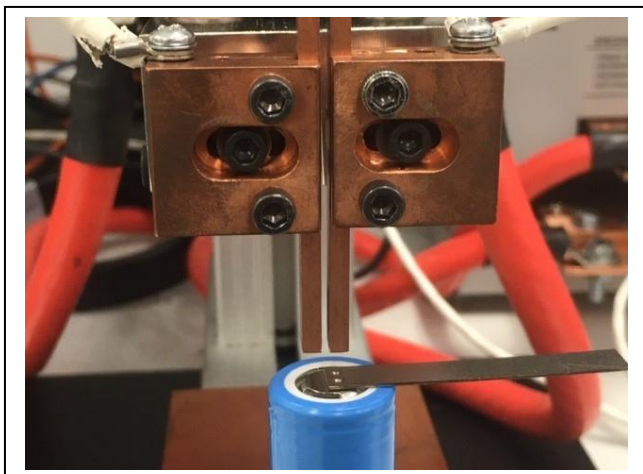
MODEL IPB-5000A WELD APPLICATION EVALUATION REPORT

Customer:	Engineered Materials Solutions	Lab Engineer:	Javier Valdez
Mailing Address:	39 Perry Ave Attleboro, MA 02703-2417 US	Contact Phone:	310-614-6121
Contact Name:	Rob Weiermair	Contact Fax:	
Title:	Business Development Manager	Contact Email:	rweiermair@emsclad.com
Samples Received:		Regional Manager:	Marlon Contreras
Date Complete:	9/21/2020	Rep:	Rich Brownstein/AMT

Application & Process Results



Step-Weld Configuration



This evaluation was completed under lab conditions. These are suggested settings that should be used as a starting point in establishing optimum process settings. All information contained in this report is strictly confidential and is supplied on the understanding that it will not be disclosed to third parties without the prior written consent of AMADA WELD TECH INC.

Application Comments:	We performed a Step-Weld with a 0.5mm (.020") thick SIGMACLAD80 Tab with .015" tall projections to a (Samsung) 21700 Battery both Positive & Negative sides. We were able to use the same weld settings for both sides. We used a higher electrode force on the Negative electrode, this is to reduce the contact resistance of the face making direct contact to the battery case.
Electrode Comments:	We used two standard ES0902 .125" x .250" rectangular shaped electrodes (Step-Weld) configuration. See attached photos.

Power Supply

P/S Model:	IPB-5000A	Function:	Upslope / Downslope
		Transformer:	ITB-780B6
Settings:			
Feedback Mode:	Current	Feedback Mode 2:	Current
Squeeze Time (ms):	150	Hold Time (ms):	800
Upslope 1 Time (ms):	00	Upslope 2 Time (ms):	00
Weld 1 Time (ms):	05	Weld 2 Time (ms):	00
Weld 1 Energy:	3.60 KA	Weld 2 Energy:	00
Downslope 1 Time (ms):	00	Downslope 2 Time (ms):	00
Cool Time (ms):	00	Displacement:	00
Limit Function:	N/A	Limit Notes:	N/A

Weldhead

Type:	Foot / Air	Model:	TL-089B-EZ
Force Range:	5-40 lbs.	Electrode Config.:	Parallel Gap Electrode
Weld Type (cont.):	Projection Weld	Force Setting:	L=7, R=6 units
Measured Force:	L=20, R= 18 lbs.	Measured Force Units:	lbs

Hardware:

Cable Size:	2/0	Footpedal:	FS2L
Cable Length:	36"	Polarity:	Positive Right

Electrodes:

Top or Left Model:	ES0902 (4-39824-02 Holder)	Bottom / Right Model:	ES0902 (4-39824-02 Holder)
Top or Left Material:	RWMA 2	Bottom / Right Material:	RWMA 2
Top or Left Face Size:	.125" x .200"	Bottom / Right Face Size:	.125" x .200"
Top or Left Shape:	Rectangle	Bottom / Right Shape:	Rectangle
Top or Left Polarity:	Neg	Bottom / Right Polarity:	Pos
Electrode Gap:	.050"	Electrode Configuration:	Step

This evaluation was completed under lab conditions. These are suggested settings that should be used as a starting point in establishing optimum process settings. All information contained in this report is strictly confidential and is supplied on the understanding that it will not be disclosed to third parties without the prior written consent of AMADA WELD TECH INC.

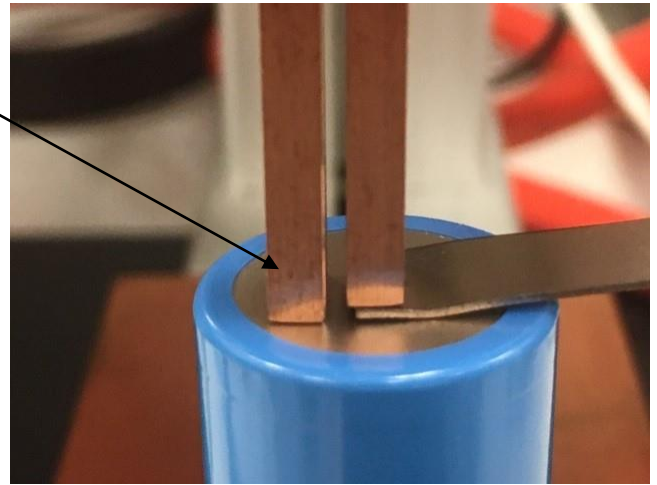
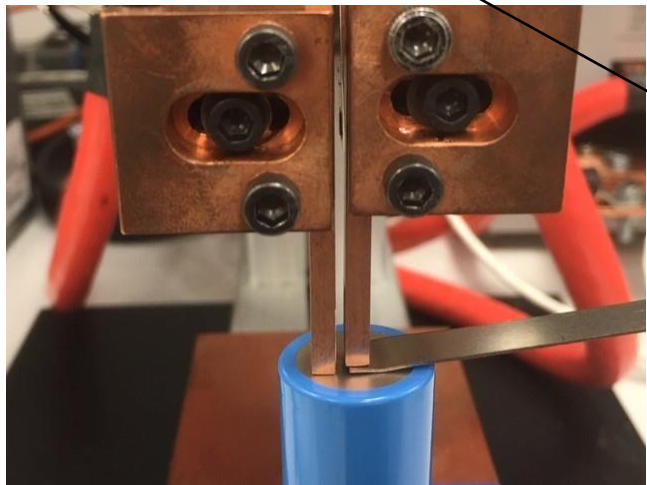
Application Information

Industry:	Batteries
Application:	Step-Weld .5mm (.020") thick SIGMACLAD80 Tab with projections to a (Samsung) 21700 Battery

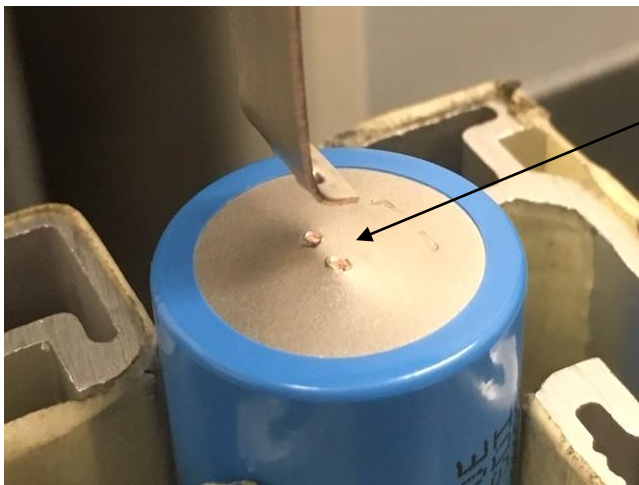
Materials:

Part Description - Top:	Tab W/Projections	Part Description - Bottom:	Battery (Samsung)
Material - Top:	SIGMACLAD80	Material - Bottom:	Cold Rolled Steel
Size - Top:	0.5mm (.020") thk W/.015" Tall projections	Size - Bottom:	21700
Plating - Top:	Nickel	Plating - Bottom:	Nickel
Insulation - Top:	N/A	Insulation - Bottom:	N/A

The below photos show the Step-weld electrode configuration

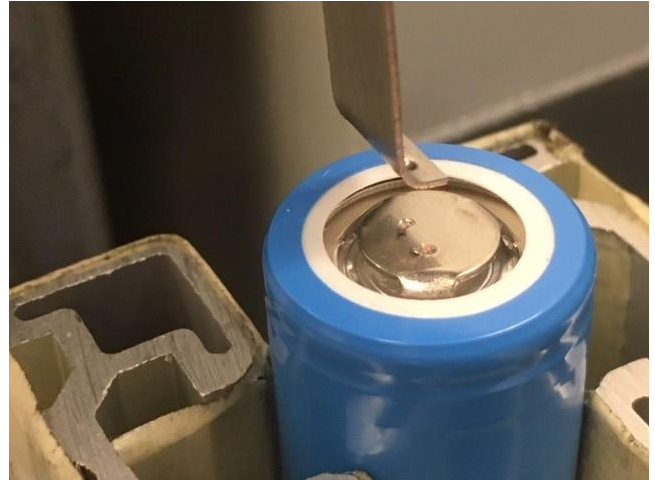


The below photos show the Pull test result for the Negative side 88.0 lbs. (pulled two weld nuggets)

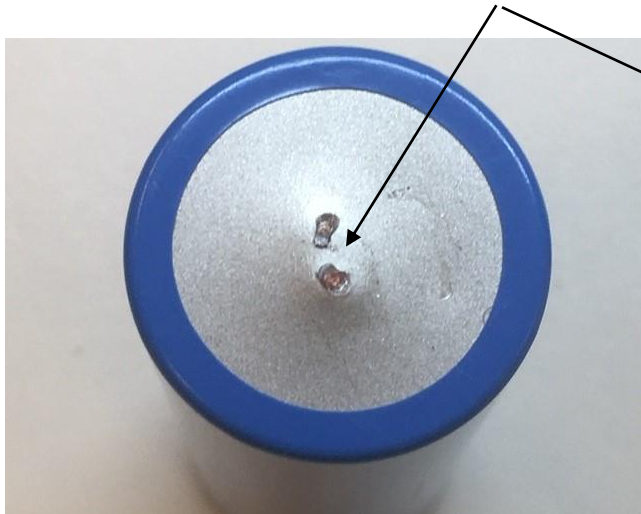


This evaluation was completed under lab conditions. These are suggested settings that should be used as a starting point in establishing optimum process settings. All information contained in this report is strictly confidential and is supplied on the understanding that it will not be disclosed to third parties without the prior written consent of AMADA WELD TECH INC.

The below photos show the Pull test result for the Positive side (Tab pulled two nuggets)



The below photos show the weld nuggets pulled from the tab material.



This evaluation was completed under lab conditions. These are suggested settings that should be used as a starting point in establishing optimum process settings. All information contained in this report is strictly confidential and is supplied on the understanding that it will not be disclosed to third parties without the prior written consent of AMADA WELD TECH INC.