

# Rebling Datasheet: 1,000 amp BFT-style Lithium Battery Terminal

Our 1,000 amp BFT-style terminal consists of a nickel-plated copper core which stays cool at 1,000 amps of continuous current or when charge and discharge currents hit short term peaks of 5,000 amps. These small footprint terminals are designed for the temperature sensitive environment of lithium battery cells and the charging rates of ultracapacitors and supercapacitors. Equipping your power module with these watertight, single pole, wrench disconnect copper terminals will facilitate the incorporation of your modules into cutting edge EV, APU, Fuel Cell and Weapons Systems. Whether you are designing a pressurized battery pack for EV Mobility, Regenerative Braking, Rail Gun or Laser Weapon applications or are simply bringing high current through a metal panel that's at least 0.080" (2.1 mm) thick, our BFT-style 1,000 amp terminals, Covers and Accessories were designed with your application in mind.



## Electrical

**Current** each current profile causes a max 30° C temperature rise when tested per IEC 61984

Current Profile #1	Continuous Rated Current (CRC)	-----	1,000 amps
Current Profile #2	50% CRC for 60min + 1 sec peak + 50% CRC for 60 min	-----	5,000 amps
Current Profile #3	50% CRC for 60min + 10 sec peak + 50% CRC for 60 min	-----	4,000 amps
Current Profile #4	50% CRC for 60min + 30 sec peak + 50% CRC for 60 min	-----	2,500 amps
Current Profile #5	50% CRC for 60min + 60 sec peak + 50% CRC for 60 min	-----	2,000 amps

## Voltage & Resistance

Continuous Rated Voltage	UL1977 Section 17	2,000 volts
Minimum Dielectric Withstanding Voltage	UL1977 Section 17	5,000 volts
Insulation Resistance	MIL-PRF-18148D Section 3.12.6	500 mega-ohms
Maximum Contact Resistance	MIL-STD-202H Method 307	70 micro-ohms

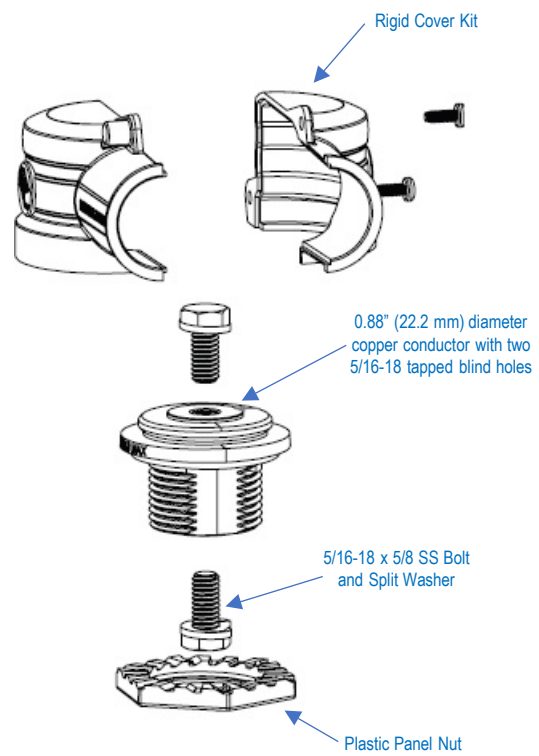
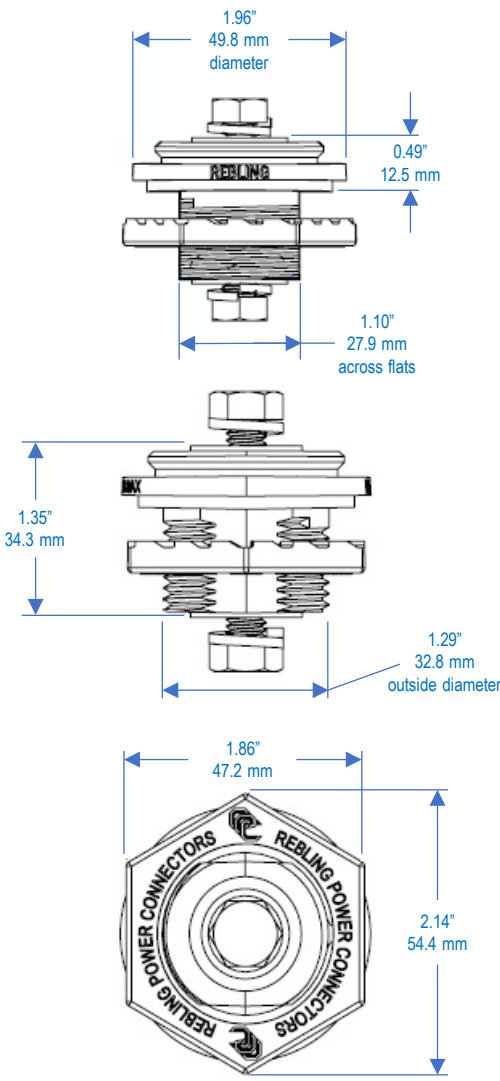
## Mechanical & Environmental

Flammability Rating:	Terminal -----	UL 94	5VA
	Flexible and Rigid Covers	UL 94	V-0
Environmental Sealing:	with Optional Gasket -----	IEC 60529	IP68+ watertight
	without Optional Gasket	IEC 60529	IP65
Operating Temperature:	Terminal and Rigid Cover -----		-40 to +125 C
	Flexible Cover		-40 to +90 C
Mechanical Shock	MIL-STD-202H Method 213 Condition A		50 Gs – 3 axes
Vibration	MIL-STD-202H Method 204 Condition A		10 Gs – 3 axes
Minimum Metal Panel Thickness Required for Mounting			0.080" (2.1 mm)
Maximum Wire Size:	Terminal only -----	-2.00" (50.8 mm) OD	750 MCM (380 mm <sup>2</sup> )
	with Rigid Cover	1.02" (25.9 mm) OD	250 MCM (130 mm <sup>2</sup> )
	with Flexible Cover	0.80" (20.3 mm) OD	4/0 (110 mm <sup>2</sup> )

## Compliance & Conformance

RoHS, REACH, CMRT/3TG  
 UL and CE Conformance

All parts listed on this datasheet are RoHS, REACH and CMRT/3TG Compliant  
 Declarations of UL and CE Conformance can be downloaded from Rebling.com



For complete dimensions, download 3D Step files of Terminal and Accessories at Rebling.com

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P/N	Description	Plastic Color	Weight (Grams)	Min Thick (mm)	UL 94 Rating	UL Material Yellow Card # **
BFT-N-B	Terminal Kit*, Brass, Nickel plated	Black	155	2.1	5VA	E121562-101513781
639A1830-B	Flexible Cover (3.50" OAL, 0.82" ID)	Black	25	2.1	V-0	E80017-250533
648A1758	Rigid Cover Kit (3.85" OAL, 1.05" ID)	Black	50	2.0	V-0	E121562-220886
850A1991-B	Angled Cover for Two Cables, Black	Black	20	1.5	V-0	E121562-220886
850A1992-B	Straight Cover for Two Cables, Black	Black	20	1.5	V-0	E121562-220886
BFT-N-R	Terminal Kit*, Brass, Nickel plated	Red	155	2.1	5VA	E121562-101513781
639A1830-R	Flexible Cover (3.50" OAL, 0.82" ID)	Red	25	2.1	V-0	E80017-250533
648A1779	Rigid Cover Kit (3.85" OAL, 1.05" ID)	Red	50	2.0	V-0	E121562-220886
850A1991-R	Angled Cover for Two Cables, Red	Red	20	1.5	V-0	E121562-220886
850A1992-R	Straight Cover for Two Cables, Red	Red	20	1.5	V-0	E121562-220886
651A1811	Gasket for BFT Terminal	Black	4	2.0	V-0	E80017-250535
656A1686	Plastic Panel Nut for BFT Terminal	Black	8	2.0	V-0	E121562-220886

\*Terminal Kit = one Terminal + one Panel Nut + two Bolts + two Split Washers, all parts in a small poly bag  
 \*\*UL Material Yellow Cards can be downloaded from ULprospector.com



The BFT Terminal can be used by itself or...

...with only the flexible cover or ...

... with only the rigid cover or...

... with the rigid cover surrounding the flexible cover



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## Mounting and Assembly

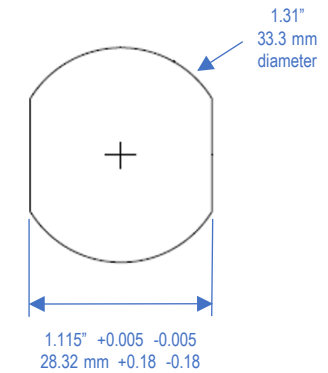
Minimum Panel Thickness (aluminum or steel)	0.080" (2.1 mm)
Mounting Hole Pattern (see diagram below)	One Double-D Hole
Torque on 5/16 Bolts:	
Recommended	50 to 60 in-lbs (5.6-6.8 Nm)
Maximum Recommended	240 in-lbs (27 Nm)
Recommended Torque on Panel Nut	30-35 in-lbs (3.4-4.0 Nm)
Maximum Crimp Lug Tongue Width:	
with Rigid Cover	1.70" (43 mm)
with Flexible Cover	1.50" (38 mm)

electrical performance does not get better or worse above 50 in-lbs (5.6 Nm)  
a Grade 4, 5/16 stainless bolt will snap at 330 in-lbs (37 Nm)



## Application Notes

- Watertight is superior to IP68:** Rebling terminals are completely watertight to a depth of 20 meters which is superior to any IP Rating. The definitions of IP67, IP68 and IP69k per IEC 60529 state that "water may penetrate the seal but shall do no harm", a condition that is unacceptable to lithium battery designers.
- Cable Pulling Lubricant:** when using 4/0 (110 mm<sup>2</sup>) cable with the flexible cover, crimp the lug to the cable then push the lug into the cover using lubricant
- Panel Nut Wrench:** a 1 7/8" socket wrench can be used to tighten the plastic panel nut
- Loctite (Thread Locking Fluid) Warning: some thread-locking fluids can cause a terminal's plastic body to crack.** Loctite's datasheets warn that its products should not be used near any thermoplastic because their fluid (or its vapor) can change the chemical structure of thermoplastic, causing stress cracks to appear weeks or months after the fluid was applied to metal bolts on or near a terminal.



Mounting Hole Pattern