

Tin vs. Nickel Plating

- Coin cell battery holders are commonly sold with gold, nickel or tin plated terminals. Since the Lead-Free movement, tin contacts are gaining popularity due to their ease of solderability. However, tin contacts introduce many new problems of which you may not be aware. We invite you to study the advantages of using nickel plated contacts instead of tin and tin alloy contacts:
- Since CR2032 batteries have nickel plated cases, the mating area of the battery contact should also be nickel to prevent galvanic corrosion between the battery and contacts.¹
- Unlike nickel, tin is not very durable because of its softness.³ This renders it more vulnerable to fretting corrosion along the mating area of the battery contact.
- Tin alloy contacts need lubrication.⁴
- Tin contacts are not compatible with gold plated PCBs.
- Although nickel can be difficult to solder, wave or dip soldering just the PCB tails or cleaning the leads with Nickel Nu[5] can greatly ease the solderability of nickel. Also, the use of through-pin Nylon holders⁶ that can withstand reflow and higher soldering temperatures aid in soldering nickel.
- Unlike nickel, tin solders form tin whiskers which pose a reliability and safety risk.⁷

Memory Protection Devices offers a full line of coin cell holders with nickel plated contacts. Please take some time to see how our holders can improve your product at <http://www.batteryholders.com/>.

¹ http://www.engineersedge.com/galvanic_capatability.htm
<http://www.corrosion-doctors.org/Definitions/galvanic-series.htm>
http://www.santovac.com/brochure/Connector_Lub.htm

³ <http://www.duracell.com/procell/design/batterycontact.asp>

⁴ http://www.santovac.com/brochure/Connector_Lub.htm

⁵ http://www.kester.com/en-us/products/prodcat_detail.aspx?pid=104

⁶ http://www.batteryholders.com/PBT_Coin_cell.shtml

⁷ <http://nepp.nasa.gov/whisker/background/index.htm>