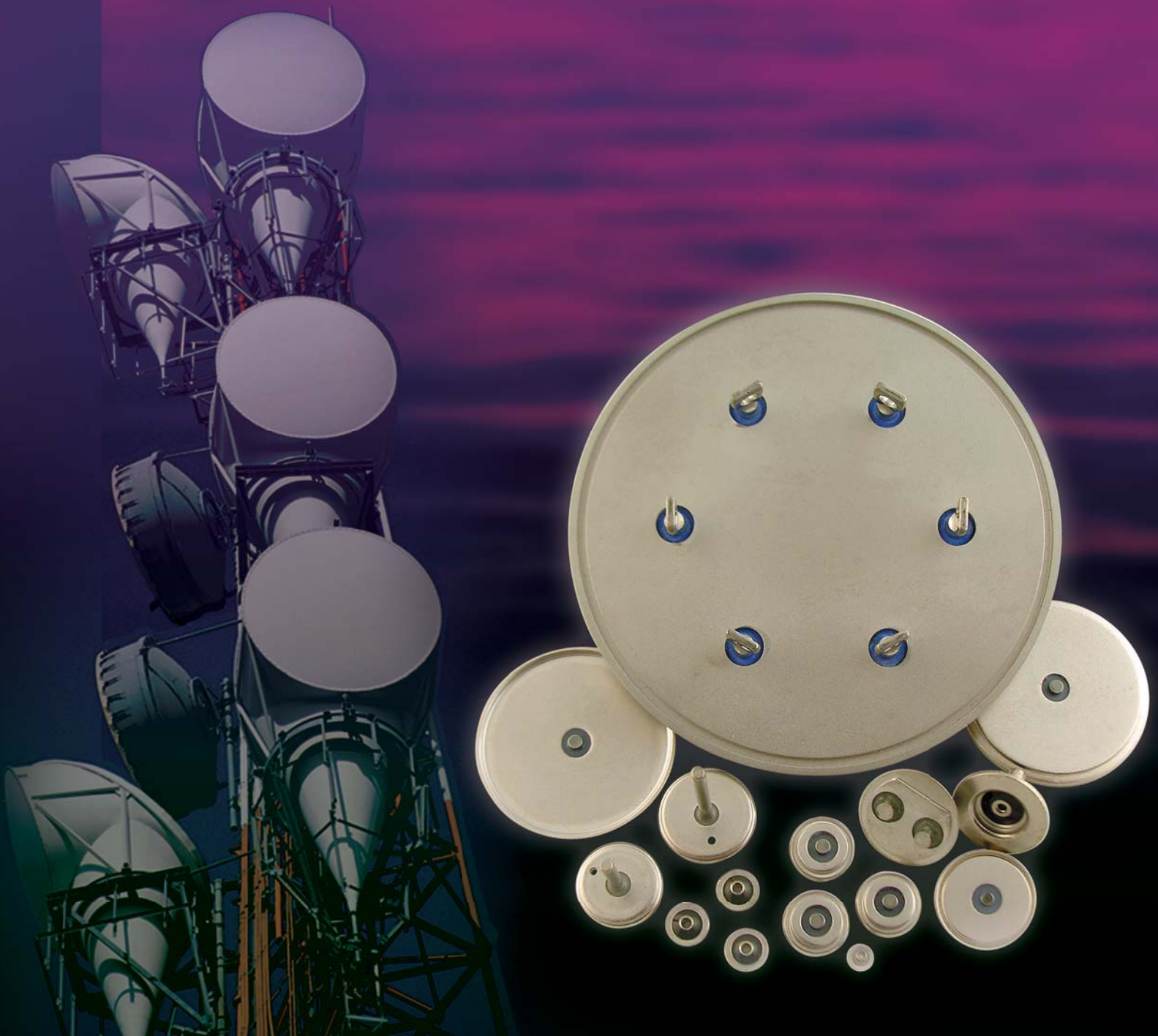




**GLASSEAL  
PRODUCTS™**

**AMETEK®**  
HCC INDUSTRIES

# Battery Seals and Capacitor End-Seals



## Products

- ▲ Circular connectors
- ▲ Rectangular connectors
- ▲ DC and RF Feed thru's
- ▲ Battery and Capacitor end seals
- ▲ TO Headers, flat-packs, plug-ins, and platforms
- ▲ Complex machined housings for Opto-electronic, Micro-electronic and Microwave assemblies
- ▲ Thermal management solutions

## Capabilities

- ▲ Design expertise and modeling capabilities
  - ✓ Mechanical, electrical and thermal
- ▲ Experienced design and process engineers
- ▲ Responsive Sales and Customer Service representatives
- ▲ High temperature brazing and glass-sealing furnaces
- ▲ Low temperature braze integration furnaces
- ▲ Chemical cleaning facility
- ▲ On-site plating shop
- ▲ Inspection and testing facilities
- ▲ Quality system registered to ISO 9001:2000 and AS9100:2004
- ▲ Access to global supply base
- ▲ 50,000 sq ft facility.
- ▲ Forward looking business plan

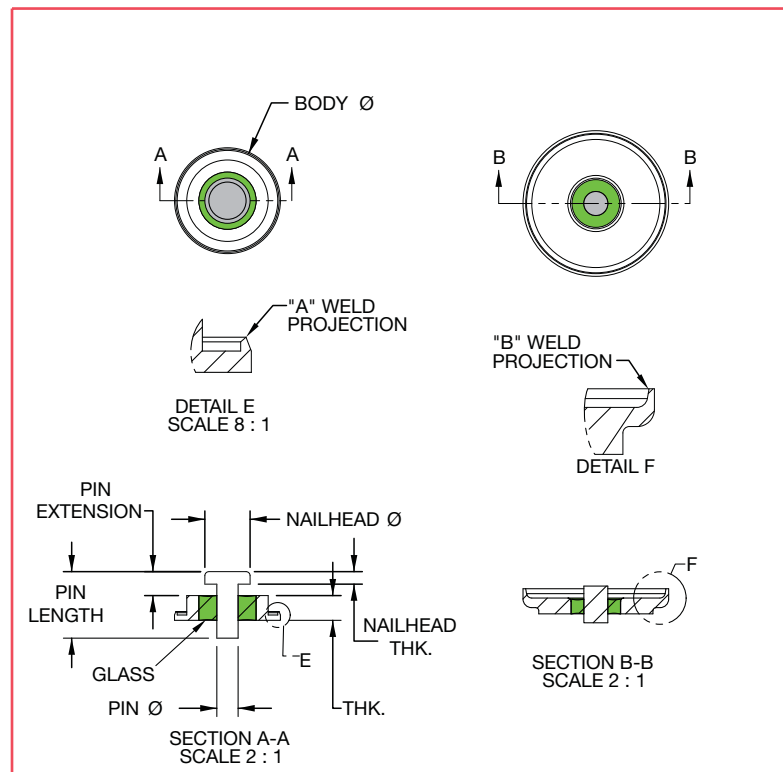
Glasseal Products (GSP) is proficient in the design and manufacture of glass-to-metal end-seals for batteries and capacitors. We are familiar with the design constraints that come with the variety of chemistries and exotic metals that allow these hermetically sealed devices to store electrical energy for use in critical harsh environment applications.

Glasseal's end-seals are used on components that power aerospace systems, weapons, down-hole oil and gas logging tools, implantable medical devices and many other mission critical products.

GSP can assist you with end-seals for primary Lithium battery cells in sizes A thru D, custom designed medical cells, thermal batteries, standard, Silver case and all-Tantalum capacitors.

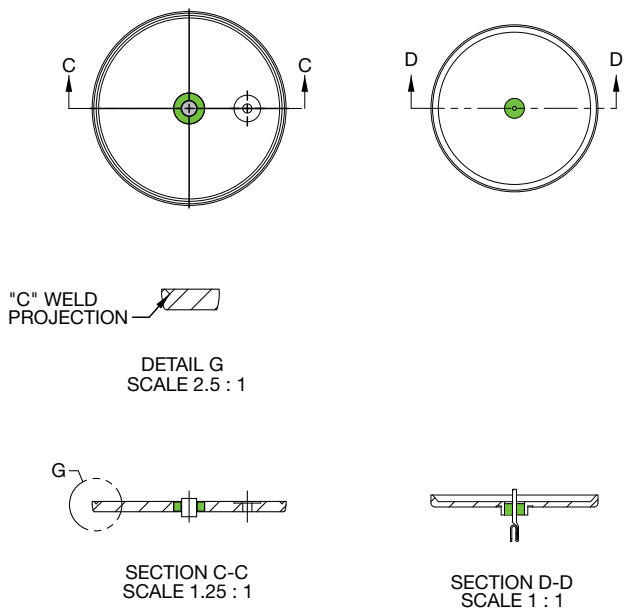
This data sheet provides a starting point when designing your product and illustrates the many options available to suit your assembly and functional needs. GSP has open tooling for many sizes of battery seals and end-seals and we invite you to contact our customer service representatives to explore off-the-shelf design solutions or customized needs.

Electrical and environmental performance data of our finished products is available upon request.

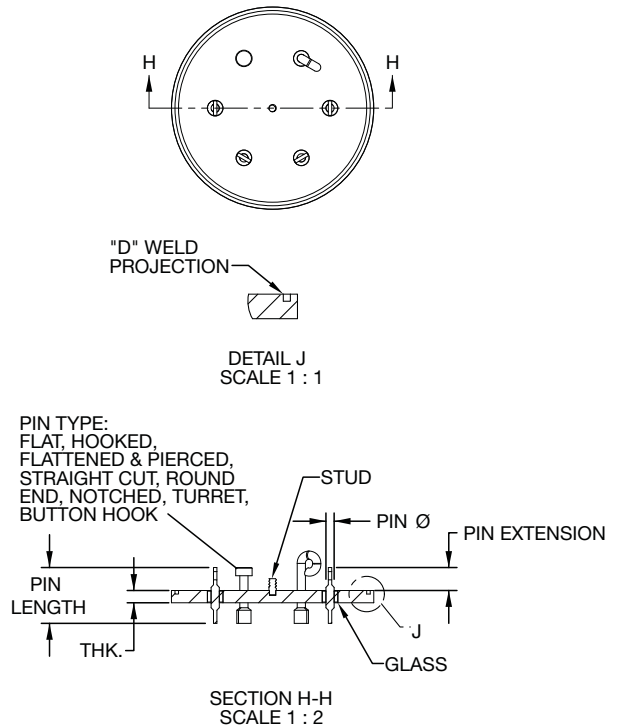


BATTERY SEAL		THERMAL BATTERY
BODY Ø	To fit battery case	To fit battery case
BODY MATERIAL	Ni plated cold-rolled steel, stainless steel, or Ti	Stainless steel
GLASS MATERIAL	Resistant to battery chemistry	Resistant to battery chemistry
GLASS THICKNESS	Typically 0.05" minimum	Typically 0.100" minimum
WELD PROJECTION TYPE	To work best with welding method such as laser, TIG EB or resistance	To work best with welding method such as laser, TIG EB or resistance
PIN LENGTH	As required	As required
PIN EXTENSION	As required	As required
PIN MATERIAL	Typically Mo, Ni-Fe, CRES	52 alloy

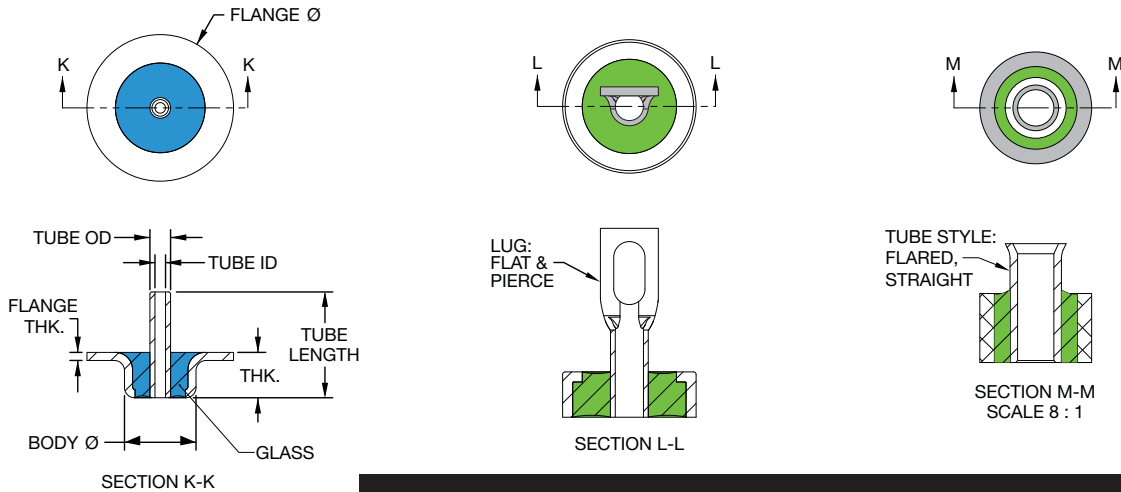
## Battery Seal



## Thermal Battery



# End Seals



END SEALS	
BODY Ø	To fit can or case
BODY MATERIAL	Typically cold-rolled steel, kovar, tantalum
GLASS THICKNESS	0.05" minimum
TUBE LENGTH	As required
TUBE EXTENSION	As required
TUBE MATERIAL	Typically tantalum, 52 alloy, kovar

## About Glasseal Products

Sealing glass to metal for over 50 years, Glasseal Products, Inc (GSP) is one of the most versatile manufacturers of hermetically sealed interconnection and microelectronic packaging components in business today. As a business unit of AMETEK HCC Industries, GSP has a broad portfolio of connectors, header, feed thru's, end seals and packages in both glass and ceramic configurations. We manufacture both standard MIL Spec products and customized designs to your drawings and technical requirements.



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