



PYROFLASK®

VACUUM
BARRIER **VBC**
CORPORATION

PYROFLASK®

Proven Reliability
in the Oil Well
Logging and
Geothermal
Industries
Since 1960

PYROFLASK high temperature

Dewars provide optimum

thermal performance for

protection of critical

downhole electronics. Every

PYROFLASK provides effective

thermal insulation at

temperatures up to 600° F.

Vacuum Barrier's PYROFLASKS

are available in a wide range

of diameters and lengths

or custom built to your

specific size, interface, and

performance requirements.

DESIGN FEATURES

PYROFLASKS are manufactured using advanced proprietary techniques which provide "k" coefficient levels unattainable with conventional insulations but in a compact design that maximizes space available for the electronics payload. The high efficiency of these instrument packages is a result of the following.

- Austenitic stainless steels standard, other materials available on request
- Concentric thin wall tube assembly
- Annular space between tubes evacuated at elevated temperature – virtually eliminates gas conduction
- Multi-layer reflective insulation to minimize radiation heat transfer
- Evacuated tube cold welded for permanent high vacuum seal
- Low conductivity internal support to maintain inner tube concentricity and still allow thermal expansion

To achieve optimum performance, our engineers take into consideration all sources of heat transfer for PYROFLASK – with neck, wall and stopper conduction the major concerns. Spacers, lead wires and heat dissipation of customer installed instruments are also critical considerations in thermal design. Upon request, expected internal performance for specific design parameters can be predicted using Vacuum Barrier's exclusive thermal modeling program.

PYROFLASKS are custom built to your specific diameter, length, interface design and performance requirements. Vacuum Barrier has broad experience with all common and exotic materials including stainless steel, titanium, Inconel and MP35N. Vacuum Barrier will work with the customer to meet specifications for corrosion resistance, magnetic permeability, collapse pressure, or other design constraints. End attachments and penetrations are also constructed according to customer specifications, including electronic feedthroughs on one or both ends.

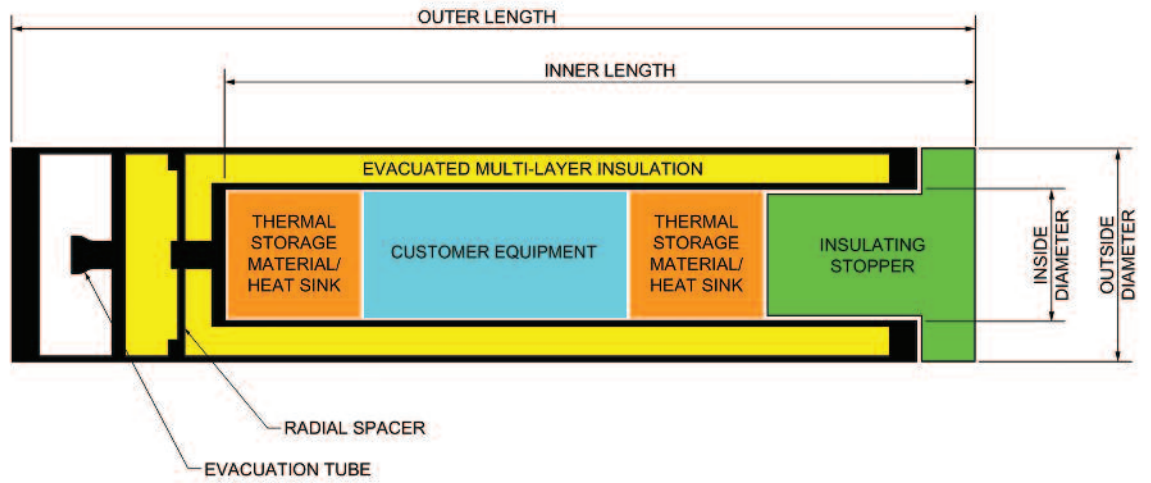
QUALITY ASSURANCE

Quality assurance methods are conducted in-plant and monitored by experienced Vacuum Barrier Engineers over a two week period.

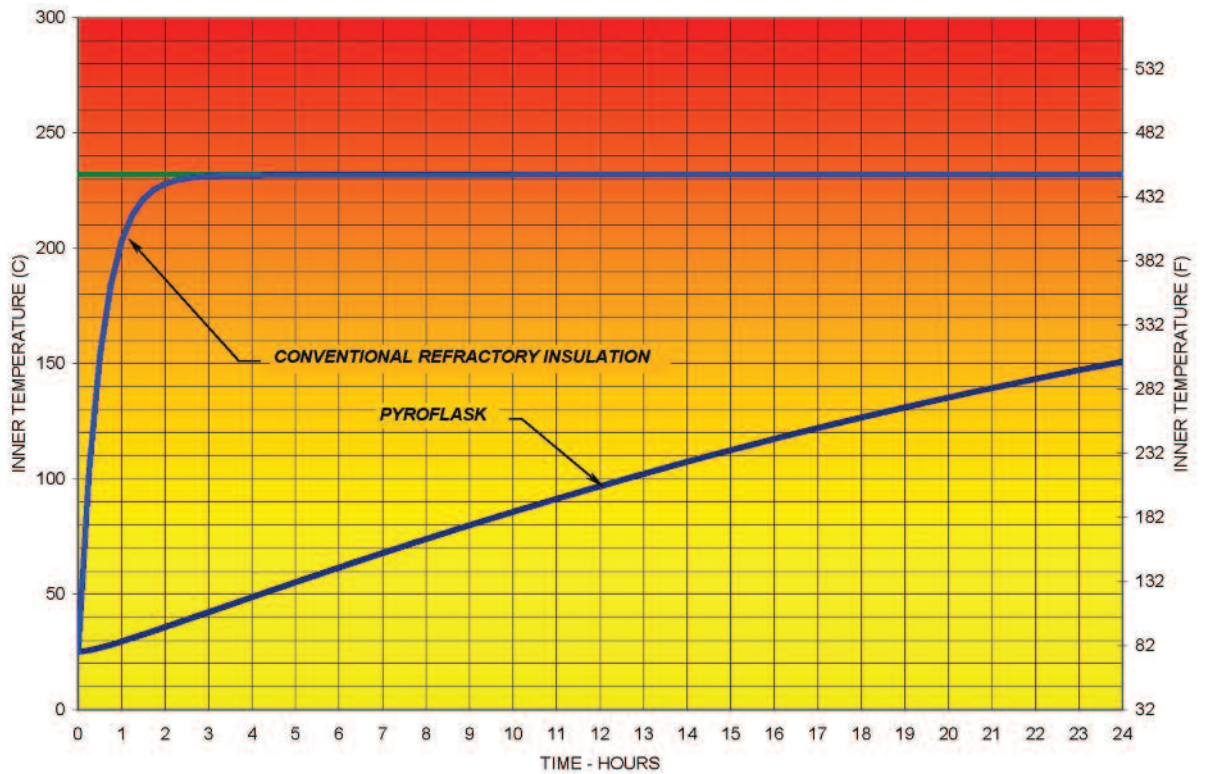
- Helium mass spectrometer vacuum testing of 100% of all welds
- Dimensional verification during assembly
- Thermal cycle and performance testing of every single PYROFLASK prior to shipment
- In-plant simulation of expected downhole thermal conditions

Specialized test procedures may be performed on PYROFLASK design according to your specifications. Formal documentation of test results for every PYROFLASK is provided with every shipment.

FLASK CROSS SECTION



THERMAL PERFORMANCE OF A TYPICAL PYROFLASK WITH 230C (450F) EXTERNAL TEMPERATURE



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