CASE STUDY

BACKGROUND
A global defense contractor needed a high performance seal to integrate mating surfaces between a module for large missile canisters and the deck of a Navy ship. The seal would serve as a barrier against harsh environmental conditions, helping to eliminate water below deck and maintain positive interior air pressure within the vessel while operating at sea.

CHALLENGE
The contractor asked PGC to develop a rubber elastomer seal with complex performance properties, under tight time and cost constraints. The seal had to:

- Maintain a certain footprint and extend as long as 40 feet.
- Meet demanding tolerances and specifications.
- Be delivered in six weeks.

PGC’s engineers knew the application required a multi-pronged solution:

- Develop a manufacturable design for the seal.

SEALING OUT TROUBLE ON A NAVY SHIP DECK.

INDUSTRY:
Defense

APPLICATION:
Navy ship deck

PRODUCT:
Elastomer coaming seal
CASE STUDY

NAVY SHIP DECK SEALING

Determine the right elastomeric material to address form, fit and function requirements, along with fatigue, temperature and space constraints.

Design a mechanical interface that made mounting the part to the ship deck as easy as possible.

SOLUTION

To prototype the extrusion without building a die, PGC developed a basic design profile at a limited length that allowed the contractor to evaluate the concept at significantly reduced development time and cost. While the company finalized designed parameters, PGC presented five highly engineered material options, ranging from a Nitrile/PVC blend to an EPDM formulation, to a Viton® fluoroelastomer, which the contractor selected for its balance of performance and cost.

Our engineers then provided concepts and drawings for the drilling fixture that allowed a secondary operation to create thru holes in the elastomer part, used for installation to the deck and module.

PGC played a significant role in designing and managing all aspects of the process, from extrusion, splicing and forming tools, to the curing and drilling jig.

RESULT

Asked to meet steep requirements for a large-scale project on an extremely tight timeline PGC delivered, earning the confidence of a demanding customer and even more demanding end-user—the US Navy.

If you would like more technical information on this case story, or have questions you’d like to discuss with one of our engineers, contact us at: sales@pgcsolutions.com or call (952) 942-6711