



MOLDTECH CUSTOMER...

A leading global manufacturer of recreational marine propulsion engines was in the final phase of a 15-year program developing the industry's most advanced propulsion system.

CASE STUDY – Marine Isolator/Seal Manufacturing

CHALLENGE

The complex arrangement of components (engine, drive system, marine electronics) hinged around a main isolator/seal grommet buried deep inside a marine vessel hull. The 18-pound rubber seal was critical, because it was also needed to absorb heavy loads during extreme maneuvers, while isolating the hull from vibration and harshness. No one material existed that could support the severe physical performance requirements and possess the required chemical and environmental resistance.

MOLDTECH™ SOLUTION

After studying the physical requirements and chemical resistance needs, we produced a matrix ranking the various material options. Review of the customer's Finite Element Analysis confirmed that the strain and stress levels limited the material selection to only a few options.

Evaluation and testing resulted in molding the part from Natural Rubber and then coating it with layers of Hydrogenated Nitrile Rubber and Fluoroelastomer. The cross link bond and excellent elongation properties of the coatings allowed the parts to stretch without causing the coating to peel.

EVALUATION

After extensive trials, samples were produced that passed the required exposure testing. The final test was administered in the field where the parts performed flawlessly.

CONCLUSION

By exploring and then combining the best properties of a wide array of elastomers, Moldtech was able to meet all the customer's part requirements without compromise. Our innovative material solution gave them the essential level of confidence required for this key marine vessel component.



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