



IP67-RATED BREAKOUT CABLES USING D-SUBS AND BACKSHELLS



Molex engineers take innovative approach to solving customers' application challenge, resulting in significant time and cost savings.

BUSINESS CHALLENGE

A customer specializing in global navigation satellite system products for environmental monitoring was in need of an IP67-rated, or waterproof, cable assembly capable of being used in an ocean buoy outfitted with sensors to map the ocean floor and record data such as current flow and water temperature.

Used for the positioning of offshore oil rigs, the buoy features a main hub that collects data from various sensors and transmits it to the outside world. Bringing as many as four jacketed cables into the back of one D-sub connector, the customer needed to ensure that these cable assemblies were environmentally sealed and protected from the elements.

During initial conversations with a competitor, an overmold approach was proposed, with seven different overmolds necessary to account for variations in cable volume and diameter. While effective, this method would require an extensive capital investment by the customer, and long lead times and significant minimum order quantities would result.

SOLUTION

A customizable silicon gasket positioned inside an off-the-shelf Molex backshell provides a flexible, cost-effective means for achieving IP67 capability.

Approached by the customer to quote its own overmold price, Molex engineers instead evaluated the challenge in its entirety and landed on a solution that eliminated all upfront tooling costs and relied almost exclusively on off-the-shelf components.

The key innovation in the Molex design was a custom silicon gasket that fits inside the existing IP67-rated D-Sub Backshell. Using a hand tool with cable diameters designated as tool-punch options, each of the seven customer-specific pass-through hole patterns could be punched into the gaskets. Cables

would then be fed through the gasket, with everything eventually being clamped down inside an off-the-shelf waterproof hood.

By utilizing off-the-shelf components, no up-front customer investment was required, minimum order quantities were significantly reduced, and shorter lead times resulted. Molex connectors were also used in place of the competitors', and the company was also able to become the sole-sourced supplier for all seven cable assemblies, generating at least \$300,000 in lifetime profit.

As a result of this project, Molex has also developed a reputation with the customer as a problem-solver and become a valued partner, earning the right to have first bid on any future opportunities to come out of its think tank.

BENEFITS AND ROI

Silicon gasket technology eliminates costly overmold tooling:

- Flexibility of solution allows for lower minimum order quantities and shorter lead-times
- Almost exclusively uses off-the-shelf Molex components
- Low tooling costs lead to no up-front customer investment
- Able to forge reputation as a customer problem-solver
- Position as valued partner leads to new business opportunities

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