

Material expertise serving connected medical devices

Through a client case study, Exsto demonstrates here that the success of a connected medical device also depends on the quality of materials and their industrial implementation. The group, which specialises in silicone processing, supports manufacturers throughout the entire product lifecycle.

The design of a connected medical device does not rely solely on electronics and software. Patient interfaces, sensor protection, ergonomics, measurement reliability and industrialisation are all critical parameters. In this demanding environment, medical-grade silicone plays a central role. Its implementation requires specific expertise, which is mastered by Exsto, a specialist in elastomer processing (polyurethane, silicone, rubber and technical polymers).

Silicone: a key material for connected medical devices

Silicone naturally establishes itself as a reference material that meets the regulatory requirements of the medical sector. Biocompatible and flexible, and resistant to moisture and perspiration, it enables the design of medical devices that are both comfortable and ergonomic, capable of withstanding the demands of prolonged use.

These qualities make it an essential material for diagnostic and monitoring applications, where the quality of interfaces directly affects the reliability of clinical data and the relevance of results.



Exsto manufactured the entire silicone protective case for the Hypnea ventilatory polygraph.

Hypnea: a concrete example of technical requirements

The portable ventilatory polygraph, developed by the Angers-based company Cidelec, a pioneer and leader in sleep diagnostics, perfectly illustrates these challenges. Designed to be worn throughout the night, this connected device had to meet a demanding set of specifications: provide optimal comfort by conforming to the shape of the arm, ensure it stays securely in place despite nocturnal movements, maintain a seal to protect the electronics from perspiration, avoid any interference with physiological measurements, and preserve reliable connections throughout the recording.

To transform these requirements into practical solutions, Cidelec drew on Exsto's expertise in the design and manufacture of technical silicone components.

Exsto: comprehensive support from development to packaging

The success of such a device relies on a combined mastery of materials and processing techniques. Exsto was involved from the earliest stages of design to guide material selection, optimise component design for industrialisation, and ensure compatibility with real-world use.

Moulding, overmolding, extrusion, precision cutting, rapid prototyping: this technological range allows the development of components perfectly suited to the demands of connected medical devices while complying with current regulations. Exsto has particular expertise in overmolding and co-extrusion of silicone with thermosensitive components—key processes for integrating multiple functions into reliable, sealed, and durable assemblies.

Beyond manufacturing individual components, Exsto positions itself as a true industrial partner specialising in silicone. The company supports manufacturers throughout the entire device lifecycle: development and prototyping, functional validation, industrialisation, series production, assembly, and final packaging.

By centralising all these stages through a single point of contact, clients only need to complete one supplier qualification. This approach simplifies procedures, reduces documentation burden, and delivers significant time savings across the project.

This continuity ensures full consistency between design and production, while seamlessly integrating the regulatory and traceability requirements specific to the medical sector.

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