

Baxter Case

Portable solution for renal patients on the move.

The Project:

Baxter International Inc. develops, manufactures, and markets products for people with haemophilia, immune disorders, infectious diseases, kidney disease, trauma, and other chronic and acute medical conditions.

The company operates through three segments: bioscience, medication delivery, and renal.

The renal segment provides products to treat end-stage renal disease and irreversible kidney failure. This segment also offers solutions and other products for peritoneal dialysis, a home-based therapy and product for haemodialysis, which is conducted in a hospital or clinic.

The Problem:

Homechoice Dialysis Instrument

Baxter's Homechoice system is designed to perform automated peritoneal dialysis (APD). The product is especially suitable for use at home, due to its small size, ease of use and unobtrusive, non-medical appearance and its simplicity and portability also make it convenient for patients when they travel.

As a result of this simplicity, the unit needs to be safely and easily transported from hospitals to the patient's home, either by themselves or via commercial delivery companies and the case needs to offer exceptional drop and impact protection for the valuable contents which are vital to the patient's wellbeing.

Discretion about the contents was also a consideration; due to the sensitivity of their medical condition, patients did not want to make it obvious that they were transporting a dialysis machine, especially when travelling through public areas.

The Solution

Meeting the requirement

CP Cases' engineers and design team had frequent meetings with Baxter to develop a system that met the requirements for the project, and during the course of the consultation period, the design process went through many stages from sketching ideas to creating 3D models and prototyping, before taking the best solution to the final design stage, one that exceeded Baxter's expectations.

Utilising a custom rotomoulded polyethylene case combined with foam inserts proved to be the winning solution. Rotomoulded cases offer exceptional strength to weight ratios and the plastic is resistant to temperature variations and solvents. The cost to produce rotomoulding tools are significantly cheaper than injection moulding tools, making custom-built, high quality plastic cases cost effective in low production runs of a few hundred units.

Polyethylene is easy to clean and has zero fungal growth, making it ideal for medical equipment and CP Cases designed a tool that would allow the exterior of the case to look and feel like an ordinary suitcase, meeting the customer requirement of a discrete appearance.

Wheel cavities are moulded into the case for attaching standard suitcase wheels, to facilitate easy transportation of the dialysis machine, in the manner of a suitcase from hospital to home or anywhere else the user needed to take the unit.

The second internal skin of the case was shaped exactly to the Homechoice unit, creating a perfect fit. This internal shape was then insulated and padded using high density foam, providing impact and vibration protection.

Test & Measurement

CP Cases is able to fully test cases to demonstrate that the contents can be protected from shock, water ingress or vibrations. Baxter required the Homechoice unit to be subjected to a maximum level of g force if dropped by the patient. The case had to attenuate the maximum g-force experienced.

