

Enabling Advanced Fluid Management in Heart Failure

Whiteswell

Advanced Fluid Management

| Introduction / Background

Whiteswell is a medical technology company focused on tackling one of the most complex challenges in acute decompensated heart failure: the management of persistent tissue congestion.

Their breakthrough system, the eLym, is a catheter-based therapy that supports the body's natural lymphatic system to remove excess interstitial fluid from tissues and organs. Founded in Ireland, Whiteswell's goal is to redefine how fluid overload is treated in patients with advanced heart failure by complementing existing therapies with a novel physiological approach.

To translate this innovation into a clinical reality, Whiteswell partnered with Bytec Healthcare to design and deliver the complete hardware platform needed for safe, reliable, and repeatable use in hospitals.

| The Challenge

Patients with acute decompensated heart failure often experience fluid build-up within tissues that traditional vascular-focused treatments cannot fully address. Existing therapies, such as diuretics, are effective at removing fluid from the bloodstream but often leave residual congestion in the organs, leading to repeated hospitalizations and reduced quality of life.

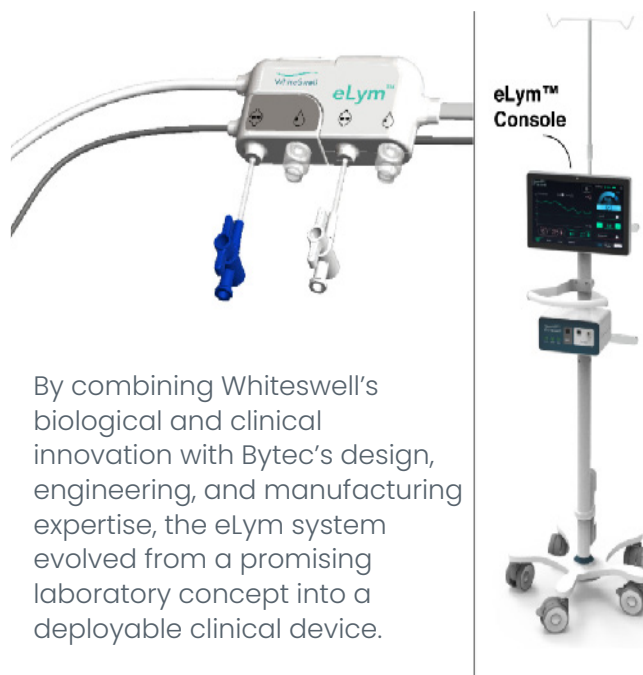
Whiteswell set out to change that with a solution that could safely and efficiently remove interstitial fluid while maintaining patient stability. Achieving this required a complex combination of precision catheter technology, controlled fluid management, and medical-grade electronic systems. To make the therapy clinically viable, the system also needed to be integrated into an ergonomic, mobile, and hygienic platform that could withstand the demands of intensive care environments.



| Solution / Innovation

Bytec Healthcare worked in close collaboration with Whiteswell's engineering and clinical teams to create the complete physical and electronic foundation for the eLym system. This included the cart platform, housing design, integrated electronics, power systems, and fluid management architecture that enable the therapy to operate reliably in real-world conditions.

Every element of the platform was designed to meet hospital workflow requirements while maintaining the precision necessary for a Class II medical device. Bytec's engineering teams developed secure mounting solutions, cable and tubing management systems, and user interfaces optimized for clinical use. Careful attention was paid to safety, sterility, and ease of access, ensuring that medical staff could operate and service the system efficiently.



By combining Whiteswell's biological and clinical innovation with Bytec's design, engineering, and manufacturing expertise, the eLym system evolved from a promising laboratory concept into a deployable clinical device.

| Outcomes & Impact

The eLym system has demonstrated highly encouraging results in clinical trials. In recent studies, patients treated with the system experienced significant reductions in tissue congestion without any decline in renal function, along with improved fluid balance and lower readmission rates. The therapy has also been granted Breakthrough Device Designation by the U.S. Food and Drug Administration, highlighting its potential to address a major unmet medical need.

For Whiteswell, these results validate years of research and development. For Bytec, they demonstrate how our integrated engineering support can accelerate breakthrough therapies from prototype to proven clinical solution. Our contribution ensures that the eLym platform is safe, compliant, and practical for hospital use, enabling clinicians to deliver this innovative treatment with confidence.

| Future Potential & Next Steps

As Whiteswell advances toward larger clinical studies and eventual commercialisation, Bytec continues to play a key role in the next stage of development.

Our focus now is on refining the next-generation device platform, optimising manufacturability, and ensuring full compliance with international medical device standards across electrical safety, quality systems, and risk management.

This ongoing partnership between Whiteswell and Bytec Healthcare demonstrates how collaboration between clinical innovators and engineering specialists can accelerate the delivery of transformative therapies.



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