

Case Study - 'Minitape'

Services offered by Culzean



Client

Mpathy Medical, a rapidly growing medical device company has developed and brought to the market a range of surgical solutions used to restore pelvic health to women.

Mpathy Medical's core product lines - Minitape and Minimesh - are used by surgeons specializing in urogynaecology, gynaecology, and urology to treat female urinary stress incontinence and pelvic organ prolapse.

Founded in 2003 by a surgeon, Dr. James Browning, Mpathy Medical supplies the only mesh solutions designed specifically for the female anatomy and physiology. The mesh 'sling' - branded Minitape - is an innovative sub-urethral tape to assist curing of female urinary stress incontinence.

The Project

The success of the Minimesh project developed here at Culzean inspired Mpathy Medical to utilise the knowledge gained to develop a new 'sling' of mesh fabric to provide a unique medical support with challenging textile requirements.

The Textile Solution

Culzean developed a polypropylene warp knitted mesh 'sling' that incorporated unique features such as a variable width, while maintaining the critical performance features previously established for the Minimesh project.

To fulfil the new requirement of a 10mm wide tape that narrows to 2mm wide strings at both ends, Culzean designed and installed custom designed controls onto a warp knitting machine.

The unique controls then allowed Culzean to knit a very specific structure that fulfilled the variable width requirements. Particular attention was also applied to the graduation of the transition zones from a 10mm wide tape to a 2mm wide tape.

Once the Textile Solution was approved, Culzean continued to work with Mpathy Medical to take the concept from an initial prototype to clean room manufacturing of large quantities of Minitapes. This required the knitting machine, with the unique control systems to be prepared for production and validated to achieve the tape structure at a consistently high quality on a continuous basis. Equipment, systems and procedures were also developed for the post-processing of the knitted tapes to create the finished Minitape.

The production clean room for the Mpathy Medical Minitape had been previously designed and commissioned by Culzean for the Minimesh project.