Research into garment sizing is driven by the twin devils of commercial necessity and advances in technology. Since both are more akin to rocket propulsion rather than a rubber band, it's perhaps surprising to find that one of the apparel industry's oldest methods of quality control has more than just a small role to play - it's vital. We are talking about the dressmaker's best friend; the tailor's companion; the window-dresser's prerequisite.
The mannequin.

Progress for dummies



Part of a Formax family from CAD Modelling.
Formax

The commercial devils in the sports and leisure apparel industry are many and varied, but the two that most affect the bottom line at the end of the year are poor stock control and foot-dragging time-to-market. Poor fit and the wrong size are endemic to both, so anything that can improve quality control and ensure the provision of made-to-measure standards with standard production volumes has to be a winner.

Mass customisation (MC) is tantalisingly lurking just out of reach. We know it's possible – and even probable – but the required investment on the part of retailers has yet to appear and, even then, only the largest will be able to devote space and money to the technology. In the meantime there are any number of brand owners and clothing manufacturers placing their bets on improvements in computer-controlled automation and, in the process, moving further away from the only true point of reference – the bodies of the consumers who will wear the clothes.

Formax. For me. For you.

The marketing team at CAD Modelling t.m. Srl of Italy is backed by over thirty years of collected data which the company employs to produce its Formax mannequin system for use by designers and quality control specialists. The dummy figures have been developed around the theories developed by Silvio Quattrocolo, CAD Modelling's founder, chief researcher and most senior consultant. His published 'Theory of Anthropometrical Structures' uses physical volumes to classify the human frame into 'families' developed from data averages.

Collection of data continues, as it must to maintain continuity, but CAD Modelling has called in the benefits of IT (information technology) in the form of its own ScanFit system. This is a body scanning device that is capable of collecting over a hundred points of reference in less than 10 seconds and then transferring the answers into the Formax database for matching to the 'morphological family'.

The Formax family of families, unevenly distributed between six men, seven women and 18 children (to match growth patterns), is now – says the company – capable of reproducing any configuration in human physical characteristics. Fully articulated and with detachable limbs to facilitate ease of access, the dummies bring flexibility to any point in the apparel production process where a check on garment fit is required.

CAD Modelling says that Formax can bring the benefits of mass customisation much closer to realisation, although it is difficult to see how this can be achieved unless a dummy to match every possible configuration is held at the point of

production and an individual customer's data is plotted directly to that point. A costly exercise in both directions and one that must apparently work against the original MC premise.

Formax works on 'best fit' principles and, as such, can undoubtedly assist in the reduction of waste in time and materials as well as improving the efficiency of retail stock control systems. Using ScanFit, CAD Modelling will continue to make a significant contribution to data collection and to the future development of its dummy families. It might even adjust the gender imbalance.

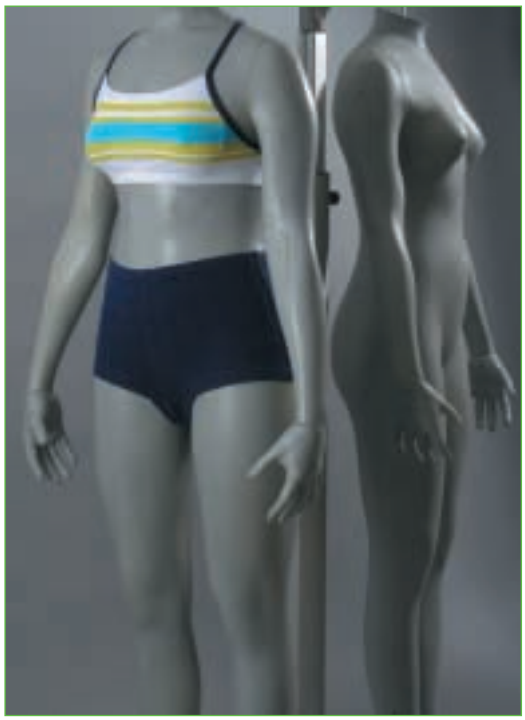
Stretching into 3D

To simplify product development, particularly with the production of stretch garments, California-based Tukatech has developed a 3D body form that is said to be morphologically correct, exact and reproducible. Tukaforms feature an outer covering that looks and performs in the same manner as skin tissue and the company claims that it is almost impossible to differentiate between flesh and blood and its life-like dummies. That is, of course, unless you run a temperature check.

The 'skin' is soft, smooth and will take pinning since the surface closes and reseals when the pins are removed. Designers can write on it, wipe off the markings with a moist cloth and write again. Skin replication and soft body parts, apparently incorporating the same amounts of fat and tissue, breast configurations and mid-section structures, says Tukatech, will assist in designers and factories seeing identical results. Unlike other dummies, Tukaform's replica of skin, muscle and body fat simulates a live model 24/7 and without an increase in the payroll costs.

To produce the Tukaform the human body is cloned by scanning live 'fit' models, making a mould and forming the final shape and tactile objectives. The sculpting of the dummy is completed by a unique process using several chemicals and a blend of materials. The resultant forms are available in many formats, including full body, torso, detachable arms, hands, head, feet and various breast sizes. The latter are available in many degrees of ductility and shapes specific to age groups. Tukatech says that a substantial advantage lies in the fact that activewear, brassiere and swimwear manufacturers can see the effects of tension from underwire or elastics on the soft tissue of the breasts as well as the creation of cleavage.

The company makes no claims to add to the possibilities inherent in mass customisation, although it would apparently be a simple, if expensive, operation to produce a model in one's own format. Possibly the better deal in context would be the provision of a kit of parts at the point of production - making perfection of the whole the sum of many.



Tukaform can take any and many forms to create the closest possible replica of a human body

Tukaform