

Circular knitted fine-gauge hole structures

A technique for knitting hole structures in fine gauge single jersey on circular machines for use in sportswear has been developed by one German machinery manufacturer

The knitting of hole structures in fine gauge (about E28) single jersey fabric has, so far, only been possible on warp knitting machines. Terrot has introduced a technique (patent pending) to transfer these hole structures to circular knitting technology too.

Demand in the sportswear sector has increased above average levels during the last few years, particularly items made from synthetic fibres. As a result, circular knitting has been the preferred method, because it provides a high degree of elasticity and excellent levels of comfort and breathability.

To facilitate the greatest possible exchange of air from the inside outwards in these functional textiles, materials with hole structures are sewn into high perspiration areas such as armpits, back and chest. This provides an exchange of air and moisture which is higher or lower depending on hole size design or the knitting structure.

Warp knitted goods with different options for hole openings and the well-known mesh circular knitted items

with their fine monofilament or fine filament threads are commonplace in a large proportion of sports items. A creative combination of the effects of warp knitted and circular knitted features means that it is possible to achieve outstanding physiological properties in clothing items.

Terrot has combined the various types of fabric properties to form a fully knitted Body Mapping unit - a whole body garment - on fully electronic controlled single jacquard machines; this first took place in conjunction with a leading Asian manufacturer of sports clothing 13 years ago. The various knitting zones were arranged based on mesh structures with relatively small dimensions for the hole openings. A circular-knitted mesh fabric with a machine gauge of E28 was used as the basis for these developments.

The new technique pioneered by Terrot enables operators to produce genuine hole openings in fine single-knitted fabrics with gauges of E28 or finer. There are no additional threads like

monofilaments or fine synthetic threads to block hole openings. There are no press-off stitches either, which would make the high-quality functional items susceptible to developing ladders.

It is now possible to design complete whole body garments (front and rear) with various hole structures in a new generation of Body Mapping items. The structures can be creatively introduced in a functional, but also a pattern-orientated

way to cope with the critical body areas in sports clothing, according to Terrot.

Fully electronic Terrot jacquard machines are available to handle this new level of diversity for patterns and applications. The range of products is also supplemented by mechanical machines, which can offer the same basic principle at a more cost-effective price for simpler applications which do not require a full jacquard machine.



Terrot has developed a new method of knitting hole structures