

THE COMPRESSIBILITY OF FINE WOMEN'S HOSIERY WITH ELASTANE

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ABSTRACT

The raw materials, fineness and yarn structures for the production of simple fine women's hosiery and hosiery with increased compression are listed. Tubular knitted samples were made of a uniform structure used in making of fine women's hosiery. The samples were made on a 100 mm (4 inches) diameter of a cylindrical knitting machine with 400 needles and the gauge of E32. Tubular knitted samples were made in three weft structures: plain, partially plated 1+1 and fully plated. In each structure, three subgroups of samples with three different loop sinking depths of 550, 700 and 850 units were knitted. In this way, nine basic samples were obtained that presented the basic structures of fine elastic women's hosiery with increased compression. In the manufacturing of the samples, the basic yarn is Polyamide with the fineness of 60 dtex f 60 and the yarn plating is the elastane yarn with the fineness of 22/17 dtex f7. The parameters of the knitting structure were measured with special emphasis on the length of the yarn in one knitted row, which ranged from 570 to 1268 mm. The tensile properties of the samples were measured in the wale and course direction. The compressibility of such tubular elastic knitted fabrics was measured after their tightening on a stiff cylinder which imitated the diameter/circumference of a particular part of the woman's leg. The diameter/circumference of cylinders were 75/240, 110/350, 125/395, 160/510, 205/630 and 250/785 mm. The measured compression was up to 2,4 kPa (18 mmHg). The simpler constructions of fine women's hosiery are attaining compression on the cylinder (leg) up to 1,1 kPa (8 mmHg), increased compression hosiery up to 2,3 kPa (17 mmHg) and hosiery with a maximum compressibility up to 2,4 kPa (18 mmHg).

KEYWORDS

Fine women's hosiery, polyamide (PA), elastane, stretching, compression