

Strength Translation from Spun Yarns to Woven Fabrics

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Abstract : Structural parameters, yarn to yarn friction, strength of ring, rotor, air-jet and open-end friction spun yarns and the strength of fabrics made from these yarns are measured. The ratio of fabric strip strength per yarn and corresponding single yarn strength is considered as a measure of quantifying the fabric assistance. Mechanism of yarn failure inside the fabric is different as that of single yarn and the former exhibit more fibre rupture. Fabrics made from weaker yarns have higher ratio of strip strength to single yarn strength than that made from stronger yarns due to larger increase in the percentage of rupture fibres in the former. The fabric assistance also depends to some extent on the degree of gripping of the yarns that is influenced by the yarn to yarn friction, extent of yarn flattening and yarn diameter.

Keywords : fabric assistance, fabric strength, yarn diameter, yarn friction, yarn strength

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