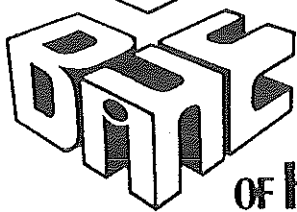


Yarn Report
by
Bolton Textile Institute

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BELROY/SPINWELL FRICTION SPINNING CONCEPT

1 Introduction

As Head of the Yarn Technology Section in the School of Textile Studies I have been associated with the Spinwell Project for about twelve months. This association has been as a provider of feedstock, test facilities and comparative yarn samples.

I am aware of and fully support the concepts on which the Spinwell Friction Spinning prototype is based. I further believe that these concepts represent such fundamental changes in the design and manufacture of friction spinning modules that the adverse criticisms which accompanied the introduction and operation of the Masterspinner may well be dispelled.

As an inevitable consequence of such a lengthy association I have been aware of the progress taking place with regard to the qualities of the yarns produced by the Spinwell prototype and my observations on the developments are as follows.

2 Yarn linear density

20 tex yarns have been spun from a 50/50 blend of 1.3 dtex polyester and cotton. A potential for finer yarns exists.

3 Yarn tenacity

The mean tenacity of the sample yarns has shown a steady increase, the latest values lying in the range 12-13 cN/tex. The CV% of yarn tenacity has shown a reduction and now lies between 8-9%. These results are directly comparable with the Uster Statistics 1989 50% level for rotor spun yarns and are slightly inferior to our own rotor spun yarns produced from the same feedstock.

4 Yarn elongation

This is in the range of 10-11% and is higher than the Uster Statistics value (8.5%) but comparable to our own rotor spun samples.

5 Yarn evenness

U% values are now in the 10-11% range and are therefore comparable to the 50% level and our own samples.

6 Yarn imperfections

The UT3 was used for this test and for the determination of the U% The parameters used in the measurement of thin, thick and neps are not compatible with Uster Statistics but can be compared with our own samples.

	Spinwell	Rotor
thin (-60%)	0	0
thick (+70%)	10	6
neps (+200%)	82	292

7 Blackboard appearance

When compared with rotor yarns both samples would be graded A but the friction spun yarn had a more regular appearance with a noticeably higher incidence of surface hairs.

8 Fabric Handle

Small knitted samples produced from friction and rotor yarns were assessed for handle. The sample containing friction spun yarn appeared fuller and less harsh.

9 Conclusions

I believe that the upper count limit, the low levels of imperfections, the regular appearance and the improved handle are the most significant characteristics when considering the end-use potentials for this yarn type. Furthermore, these observations relate to small samples produced from a single head prototype machine and may not be indicative of the yarn properties from full scale production machines. However, I believe that the improvements in yarn properties which have occurred over a short time-span, the less than ideal spinning conditions under which these yarns have been produced and the basic design of the machine indicate a device which has great potential.

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