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the potential for a  
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## **PROBLEM OF ESTIMATING THE POTENTIAL FOR A NEW SPINNING PROCESS**

To those people who, in all reality, know relatively little about the complexities of the yarn market to assess the potential for a **totally new spinning technology** can seem very straightforward. Such people believe that all one needs to know is the range of yarn counts (i.e. thicknesses to the lay-person) that the spinning process can produce and work out the markets that fall into that yarn count range. Any potentially awkward questions can be brushed aside by simple answers like - we will resolve that problem if the need arises.

Even if the spinning process becomes successful, very few people bother to examine afterwards whether the market researchers made valid assumptions or not. If they did, they would quickly discover there was a very large penetration in some areas and no penetration in other areas. In effect, the market survey was substantially a waste of time.

However, I find it more difficult because I know the industry very well and realize how complicated it really is. I know many of the key parameters that potential customers will be looking for in the yarns for the different processes. Eventually however when the machine becomes established no one will be concerned.

If Mackie (or ourselves) rather than Schlafhorst, who are already established in this sector of the textile engineering industry, are to manufacture the SpinWell, I have a very clear and precise plan as to how this machine should be marketed.

I have examined in great detail the success and failures of the marketing processes adopted to get the Repco spinner, the MasterSpinner friction spinning machine, and also the Schlafhorst Autocoro rotor spinner established into the market place.

## **BEING ALREADY IN THE INDUSTRY IS NOT CRUCIAL IN THE LONG TERM**

In all my time in the textile engineering industry, I have found little evidence that an established position in the industry has had much part to play in whether a new textile producing technology would get established.

However, a company used to building and marketing similar equipment will far more quickly establish a large market penetration if the product is accepted by the market. For example, a spinner would be confident in purchasing say 20 machines built by Schlafhorst, whereas if it was built by Mackie (or ourselves) they would first want to purchase only a couple to make sure they operated to their requirements.

I will cite two examples of success by engineering companies not in the sector when they started to manufacture spinning machines :-

- The Czechs with the BD 200 range of machines introduced in 1965 dominated the rotor spinning market for many years. For 15 years or so, they sold more rotor machines than all other rotor machine manufacturers put together. This was simply because they offered a low price with a reasonable quality of product. There was no tradition at all for this company being a world player in the manufacture of textile machines.
- Schlafhorst are traditionally yarn winding machine manufacturers and the Autocoro rotor spinner was laughed at by the other machinery makers in the Spinning Industry when it was introduced some 20+ years ago. It would not have been such a phenomenal success without its robotic piecing together after a yarn-end break being so good that the yarn could be sold as fault free, and which set a new standard. Other things clearly had to be reasonable also.

To a certain degree, even the ill-fated MasterSpinner friction spinning machine demonstrates the point in regard to companies new to the spinning machine manufacturing sector.

- In the 1970s, Platt Saco Lowell Limited (part of the UK's once massive Platt engineering conglomerate) were still a large textile machinery manufacturer with sales of over £300 million at that time.
- However, by 1980 there was no going concern to sell. The Hollingsworth USA organisation simply bought the assets of Platt Saco Lowell Limited from the Official Receiver and set up a new company called Platt Saco Lowell (UK) Limited to exploit them.
- The only main-stream products the new company set itself up to manufacture were firstly the 10 position friction spin-testers and subsequently the MasterSpinner 144 position commercial friction spinning machines.
- Not one of the spinners who purchased these machines in the 1980s could be classed as traditional customers of the 'old' Platt Saco Lowell Limited, and more than half of these customers of the 'new' company had never purchased a machine from the 'old' one.

There are dozens of other examples that could be quoted.

## **TO BE SUCCESSFUL A NEW SPINNING TECHNOLOGY MUST HAVE AN EDGE**

The textile industry is so large and the yarn requirements so different for so many products, even within the same yarn count sector, that no technology will satisfy all the requirements.

The 'old' Platt Saco Lowell with the Repco spinning machine were very successful in getting a totally strange yarn structure accepted by the industry.

- This was achieved by concentrating totally on the economics and the fabrics produced with this system - rather than the yarn itself.

Schlafhorst were successful with their Autocoro rotor spinner by concentrating the market's attention on their automation features.

- The yarn quality of Suessen's spin-box used in the early Autocoros was certainly inferior to that of Rieter, Schubert & Sulzer (Ingolstadt) and the 'old' Platt Saco Lowell.
- But because Schlafhorst's automation worked and nobody else's did, yarn quality was not the overriding crucial factor.

## **WHAT IS IMPORTANT**

The important thing is whether a spinning machine will perform so as to provide economic advantage to the purchasing spinner. In today's high-tech world, the quality and performance of the machine is paramount and will become increasingly more so.

The SpinWell technology has moved on so far from the MasterSpinner technology that I plan to introduce this as a new technology rather than a re-working of the old MasterSpinner technology. This is the crucial feature of the Mark 12 prototype and why we persevered for a number of extra years to develop our friction spinning technology to its present level.

This new concept idea certainly worked for the MasterSpinner. In the 1980s, the 'new' Platt Saco Lowell went to great lengths by way of presentations in the USA and Europe to ensure that people were aware that there was no common ground between the yarns produced on the MasterSpinner and those produced on Austria's DREF range of friction spinning machines. Schlafhorst made a mistake in not realizing this fact when they adopted Dr. Fehrer's 2 perforated rollers DREF technology with its known shortcomings in spinning short staple fibres.

Below I have laid out guidelines as to the performance criteria the machine must provide for installing the first pony (short length pre-production machine) perhaps in Courtaulds Swan Lane Spinning Mill. These could form the basis for questions to potential customers.

## GUIDELINES

**AUTOMATION:** This can be put simply in that a SpinWell based machine will produce piecings as good as the Autocoro and perform as reliably as the Autocoro. Great effort has been undertaken to get a simple automated process which does not require the hundreds of levers and mechanisms as employed on the Autocoro. How we achieve this is not important to the potential customer at this stage, that is our worry. Without this facility there is no process.

**ECONOMIC FACTORS:** The machine will sell at a price to give a 20% reduction in the capital costs compared to an Autocoro per kilo of yarn produced. The manufacturing costs, throughput rate and profit margin will undoubtedly be such that this can be achieved.

We should not talk about yarn delivery speed except in very general terms because at this stage that is not finalized and it will vary widely from yarn to yarn.

In addition there will be more than a 33% reduction in space, slightly lower power costs and slightly lower labour costs. Perhaps it will be enough to simply say there will be no economic running cost disadvantages compared to the Autocoro.

**YARN SPECIFICATION:** The key marketing feature of the SpinWell yarns will be combined with the following.

Before any machinery is supplied the variables on the SpinWell spin-box will be optimised to ensure that knitting performance is at least as good as rotor yarn. Because of the low spinning tension permitting far fewer yarn breaks, and improved dust and short fibre removal available on friction spinning, I know already that this will be possible.

A key element of the SpinWell design is to ensure that spin-box to spin-box yarn producing consistency will be such that regular and uniform fabrics will be able to be produced. I know already that the structure and method of yarn formation of the SpinWell makes yarns that produce more regular fabrics than rotor yarn and significantly more regular than ring yarn

**YARN STRENGTH:** The one thing that will lead Belroy into a tangled web is to become involved in discussing yarn strength. I discuss below the reasons why.

If yarn strength really was the all important yarn parameter, there would be no natural cotton or wool yarns. Instead there would only be 'man-made' continuous filament products. We would live in a world whereby we would :-

- Only wear textured polyester trousers, suits, dresses and sweaters.
- We would wear nylon shirts and underwear.
- Sleep on nylon sheets

If such a 'yarn strength dominated world' really existed, then even if cotton was used, all the yarns consisting of cotton blended with polyester, as a large part of short staple production already are, would only use high tenacity polyester. Whereas to reduce fabric pilling (i.e. tiny balls of fibre on the surface), almost 90% of polyester used is low tenacity. Thus, by deliberate choice, the spinning industry currently produces much weaker yarns than is possible.

- If this was not so, it would be a scenario in which all rotor machines became redundant.

## WHERE YARN STRENGTH IS IMPORTANT

Yarn strength is important in two instances - (a) where woven fabric strength is specified in such items as technical materials and (b) where the stresses imposed on the yarn cause too many yarn-end breaks. Although ring yarn is fundamentally stronger than rotor it has a greater tendency to produce weak spots and invariably processes worse than rotor yarn. The elimination of weak spots has been a crucial part of the development in the SpinWell Mark 12 prototype and the importance I attach to this subject is indicated in one of my articles in the textile industry press.

A key element of the SpinWell technology, which was not available on the MasterSpinner (but available on rotor machines), is to have replaceable features inside the spin-box which can ensure that for every yarn the best set of conditions can be applied. Unlike in the 1960s and 70s, today, 30 years later, one hears very little about the strength differential between ring and rotor yarn, but a lot about the aesthetic differences.

Part of this is because totally different cotton types are used for ring and rotor yarns. Schlafhorst have even been trying to exert pressure to change the method of cotton grading to better suit the economics of rotor spinning. Direct comparisons are therefore not meaningful in a commercial environment. High speed rotor machines want the shorter, but stronger cotton fibres, which are not ideal for ring spinning machines.

## YARN MARKETS TO TARGET INITIALLY

Because my brother Roy saw the market as being so big and wanted to present a simple concept to people outside the Textile Industry, Belroy did not go into the correct detail to determine the true potential for a SpinWell based spinning machine.

In addition to the knitting industry, where I can see mostly plus features because of the improved aesthetics compared with rotor and the far more regular fabrics than ring spun products, there are many other areas in which the advantages of the SpinWell friction yarn would need to be weighed against its disadvantages. The big plus of the SpinWell, apart from speed, is that in every instance it does have other advantages over both ring or rotor.

As a general guideline the features which we have concentrated on are what are termed face characteristics rather than improved processing characteristics.

**TOWELS:** For the majority of towels a soft and bulky product is the optimum product for the surface fibre (around 70% by weight of the weight of a towel).

The SpinWell yarn is ideal for this requirement and will need to be assessed against the marginally higher incidence (or lower weaving speed to maintain efficiency) of stoppages that will occur due to its greater bulk.

I would be very surprised if one of the first customers for a SpinWell based machine was not a towel manufacturer.

**VELOUR, VELVET AND CORDUROY:** The SpinWell yarn structure is ideal for velour, velvet and corduroy fabrics and will produce a superb product. This applies equally to home furnishings as it does to clothing.

The problem with the clothing aspect of this market is that it tends to fluctuate wildly with fashion movement, but is an ideal complementary product to producing knitting yarns. There is no doubt whatsoever that a lot of friction spun yarn will end up in this product area.

**BRUSHED FABRICS:** The same applies as for velour.

**DENIM:** The modern rotor machines are ideal for denim.

Consequently, except for brushed denim, the penetration in this market will be small in the first instance. However, the improved economics combined with the characteristics of the SpinWell process and yarn should enable some penetration in those making both the top (different product) and bottom (price) of the range denims.

**WOVEN SHIRTS:** These are the products in which the finest yarns are employed

It will take some time, if ever, to make a large penetration in 100% cotton and 50% cotton 50/% polyester warp yarns in mens dress shirts. The increased bulk and soft handle of the SpinWell yarns rather than strength will require changes to the size specification to make an optimum product and even then optimum make sizing and combined with lower strength. Far less problems in making satisfactory weft yarns, but the advantages offered by the SpinWell will be economic rather than technical.

There should be no problem in warp consisting of 65% polyester 35% cotton, 100% polyester yarns, or polyester viscose yarns.

A stand-by product but not a reason to purchase the SpinWell in the first instance.

The yarn is ideal for the casual woven shirts which are made from coarser yarns and in which a bulky product and a soft handle are marketable features.

**WOVEN SHEETS:** This is a complex area in that there is a preference, in many instances, for a soft handle (winceyette is the soft extreme), but fabric strength does have a part to play also. Yarns are coarser than dress shirts and there will certainly be some areas in which the improved aesthetics/appearance will balance out the lower fabric strength.

**YARNS CONTAINING ELASTOMERICS:** The SpinWell process is ideal for incorporating elastomeric yarns and the additional yarn feeders can readily be incorporated and by-passed to produce normal spun yarns. This market is quite large, particularly for denim, but like most things in textiles it has ups and downs. I would be very surprised if one of the first SpinWell machines was not for a company providing these products.

**LININGS:** This is an extremely price competitive area and the cost savings of the SpinWell combined with its ability to process very dirty cottons (cheap cottons) and produce a clean final yarn may be worthwhile. It is difficult to imagine anybody purchasing a machine for this application alone, but it would be a fill in product.