

Can you afford not to produce compact-yarn?

The cost of pneumatic compacting equipment and its operation has always been and will always be very high. As a result, pneumatically compacted yarns must fetch a higher price than standard yarns in order to justify the investment and the additional cost of labour and replacement parts.

With the introduction of the RoCoS compacting system the situation has changed dramatically. The cost of spinning RoCoS compact yarn is in line with the cost of spinning standard yarn. Therefore, compacting is no longer a method to be applied only for very expensive yarns, but a **must** for every mill to in order to stay competitive.

Your top of the line yarn will become substantially better, your lowest priced yarn even less expensive to make, provided you use RoCoS compacting, the only system today which does not increase your cost of spinning.

1. How to spin a better yarn at the same cost?

The answer is already given – by compacting. The improvements achieved are:

In general:

- higher strength
- higher elongation
- higher capacity of work
- much lower hairiness

In particular:

Example 1 - Ne 80/1 100 % combed cotton for a special woven fabric (India)

Example 2 - Ne 30/1 100 % carded cotton for a woven print cloth (Pakistan)

Example 3- Ne 36/1 50 % carded cotton / 50 % Modal for apparel knitwear (Germany)

Yarn Ne	Strength	Improvements in % from Regular Yarn		
		Elongation	Cap. of Work	Hairiness S3
1.1) 80/1	+11.3	+ 8.0	+16.3	- 89.4
1.2) 30/1	+18	+23.2	+36.3	- 90.8
1.3) 36/1	+ 7.2	+ 3.0	+ 8.2	- 90.1

These improvements translate into:

Spinning

- in addition to all other improvements, a better fibre yield, less fly and fluff = less waste

Weaving

- improved warping performance
- up to 10% savings in sizing
- increase in loom efficiency
- less shedding fibre abrasion
- less cleaning

Knitting

- less fly and fluff
- less cleaning
- better machine performance
- improved fabric appearance

Dyeing, Finishing, End Product

- reduced shrinkage
- no or reduced fabric singeing
- less dyestuff consumption
- improved colour brilliance
- clearer contours on prints, jacquards, multicolour, chequered and stripes
- no or reduced enzyme treatment

In all cases mentioned above, the cost of spinning RoCoS compact yarn does not exceed the cost of spinning standard yarn, using similar raw material.

The full advantage of less hairiness, higher strength and elongation and generally better yarn values will be translated into a much better end product and substantial savings in yarn processing, which easily pays for the initial investment.

2. How to spin the same yarn at lower cost?

The technological advantages, if not required, can be converted into economic advantages.

In general:

- lower raw material mix
- reduced twist multiplier
- reduced comber noil extraction
- higher spindle speed

In particular:

Example 1 - Ne 20/1 100% carded cotton for a woven print cloth (Turkey)

Example 2 - Ne 30/1 100% combed cotton for single jersey T-shirts (India)

Example 3 - Ne 60/1 100% combed cotton for woven bedsheetings (India)

Yarn Ne	TM alpha e	Procuotion spindle min- 1	Speed del. m/min.	Plant. eff. %	Procuotion (8500 h/year)		
					kg/Spih	Spi/ Frame	kg/ year
2.1) 20/1	4.13	17.000	23.35	92.5	0.038	1008	325.584
2.2) 30/1							
Regular*	3.6	15.800	20.33	93.0	0.022	1.200	224.400
RoCoS	3.3	16.500	23.17	93.0	0.025	1.200	255.000
*Regular = 15% comber noils, RoCoS = 11 % comber noils							
2.3) 60/1	4.12	19.500	15.49	95.0	0.0087	1.200	88.740

Savings:

2.1) The cotton mix was reduced by 1 grade and 1 class; the cost, related to 1 kg of yarn, was reduced by € 0.05/kg resulting in an annual cost reduction of

€ 16.280,-

2.2) The cotton mix remained the same, the TM was reduced from 3.6 to 3.3 the comber noils from 15 to 11 % and the spindle speed increased from 15.800 to 16.500.

By these "adjustments" due to RoCoS the economic advantages are

Additional contribution (30.600 kg x 1.30 €/kg)	€ 39.780.-
Additional power, estimated	- € 2.500.-
<u>Additional production cost, estimated</u>	<u>- € 15.000.-</u>
Additional net contribution	€ 22.280.-
<u>Avoided marginal loss for 8.100 kg of noils at € 0,60/kg</u>	<u>€ 4.860.-</u>
Total Economic Advantage	€ 27.140.-

2.3) In this vertical mill, the cost of the cotton mix was reduced by € 0.17/kg related to 1 kg of yarn and the total savings for € 88.470 kg are

€ 15.086 p.a.

In all cases mentioned above the cost for spinning plus the cost for raw material is lower for RoCoS compact yarns versus standard yarns while keeping all important yarn values at equal level. The substantially lower hairiness of the compacted yarn comes in as a bonus at no extra cost.

The savings in the cost of spinning and raw material easily pay for the initial investment.

Conclusion

With the advent of RoCoS, the second generation of compact spinning, every mill can now spin a much better yarn at the same cost or keep its quality standard as it is at a lower cost. Therefore in the long term RoCoS compacting will become a must for every mill in order to stay competitive.

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