

TECHNICAL BULLETIN



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TRI 1011

RECOMMENDATIONS FOR PRODUCING ROUGH-SPUN YARN ON CONVENTIONAL EQUIPMENT

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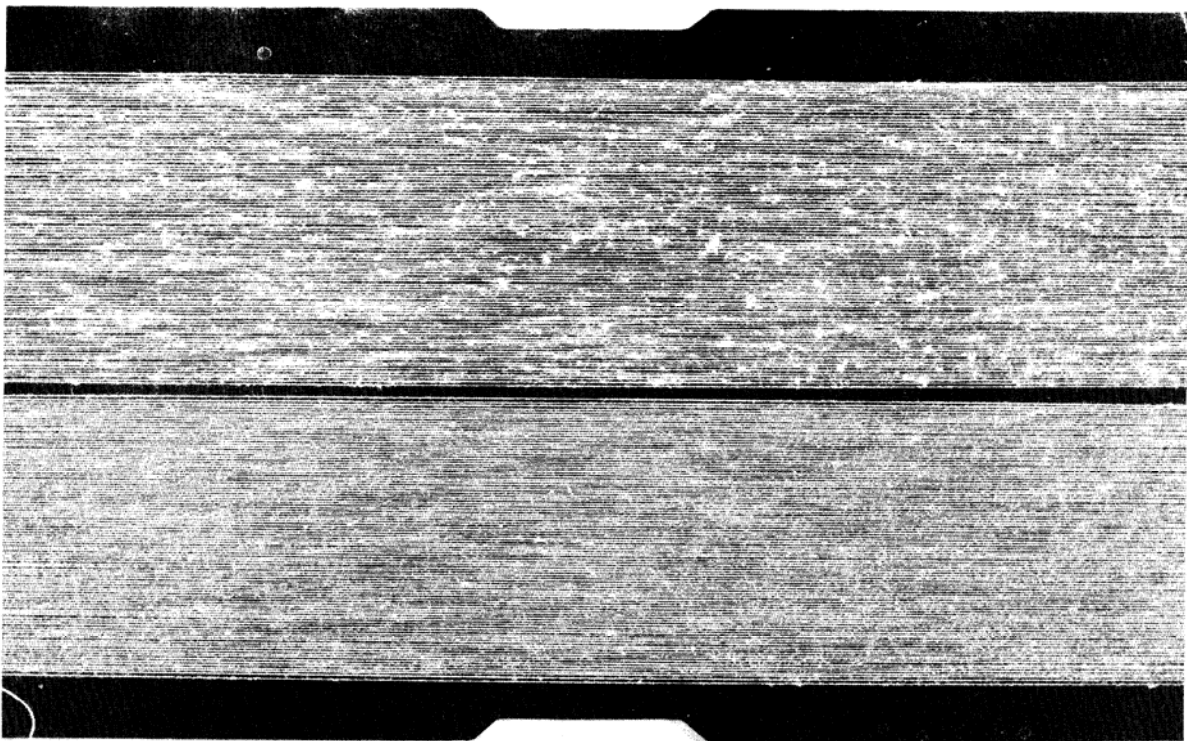
CONCEPT

To produce an all cotton effect yarn with random short slubs and neps which spins efficiently using standard, unmodified machinery.

INTRODUCTION

Many random effect yarns are made by the use of unusual raw materials – i.e., waste or additional machinery, such as slub attachments. In the case of the former, spinning efficiency and low yarn strengths are common problems; and yarn character changes as the quality of the waste supply varies. In the case of the latter, additional monies must be spent on machinery which may not be useful, as customer preferences change with time.

These limitations could be largely overcome if normal raw cotton and standard yarn mill machinery were used.



Example: Carded Rough-Spun vs. Carded Regular Yarn
(Ne 18/1 Ring TM 3.8)

ROUGH-SPUN YARN SPINNING PROCEDURE

GENERAL

Rough-spun yarns may be spun using either ring or open-end spinning machines. The count range using a ring spinning frame is from 8/1 Ne to 30/1 Ne, while the open-end count range is 6/1 Ne-20/1 Ne. The “roughness” of the ring-spun yarn will be somewhat more pronounced than open-end yarn spun from the same material.

The cotton selected for rough-spun yarn should be of similar quality, at least initially, to that normally spun by the mill into a given yarn. As experience is gained, it is likely that the cotton grade may be reduced.

MACHINERY SETTINGS

The rough-spun effect is achieved by altering card settings to cause fiber “rolling” on the cylinder. (See table of card settings.) This effect is essentially achieved by setting the doffer to cylinder setting and the flats to cylinder setting to 0.040 inches and by using stripless flats or slowing down the flat rotation to one or two inches per minute.

If a yarn containing additional leaf and other trash is desired, undercard waste as well as opening room waste may be appropriately reduced.

No other changes in machinery settings in the card room or spinning room are required. It is likely that some twist multiple changes may be necessary in order to obtain a reasonable yarn strength.

MAINTENANCE

The rough-spun effect is achieved by allowing a certain amount of fiber rolling on the face of the card cylinder. Therefore, only cards with sharp, undamaged wire should be used; otherwise the cylinders will load excessively with fiber and may jam. Additionally, poorly maintained cards will lead to the production of variable roughness yarn.

USES

Yarns made by this procedure produce novelty slub looks when used in the filling of denim, chambray, dobby, and plain weave fabrics. Stock dyed, as well as natural, fiber produces unique effects.

OTHER CONSIDERATIONS

1. Production rates of the cards may be maintained at the same rate previously used to card the same raw material.
2. The rough-spun effect is not dependent on the type of wire or the make of the card used.
3. Sliver weight has no appreciable effect on the rough-spun effect.
4. Finer counts require longer fiber if yarn strength and ends down are to be maintained at reasonable levels.
5. Depending on circumstances and yarn quality requirements, a certain amount of waste may be introduced into the blend. However, this should be done only after the desired yarn roughness, strength and ends down levels have been achieved using standard raw cotton.

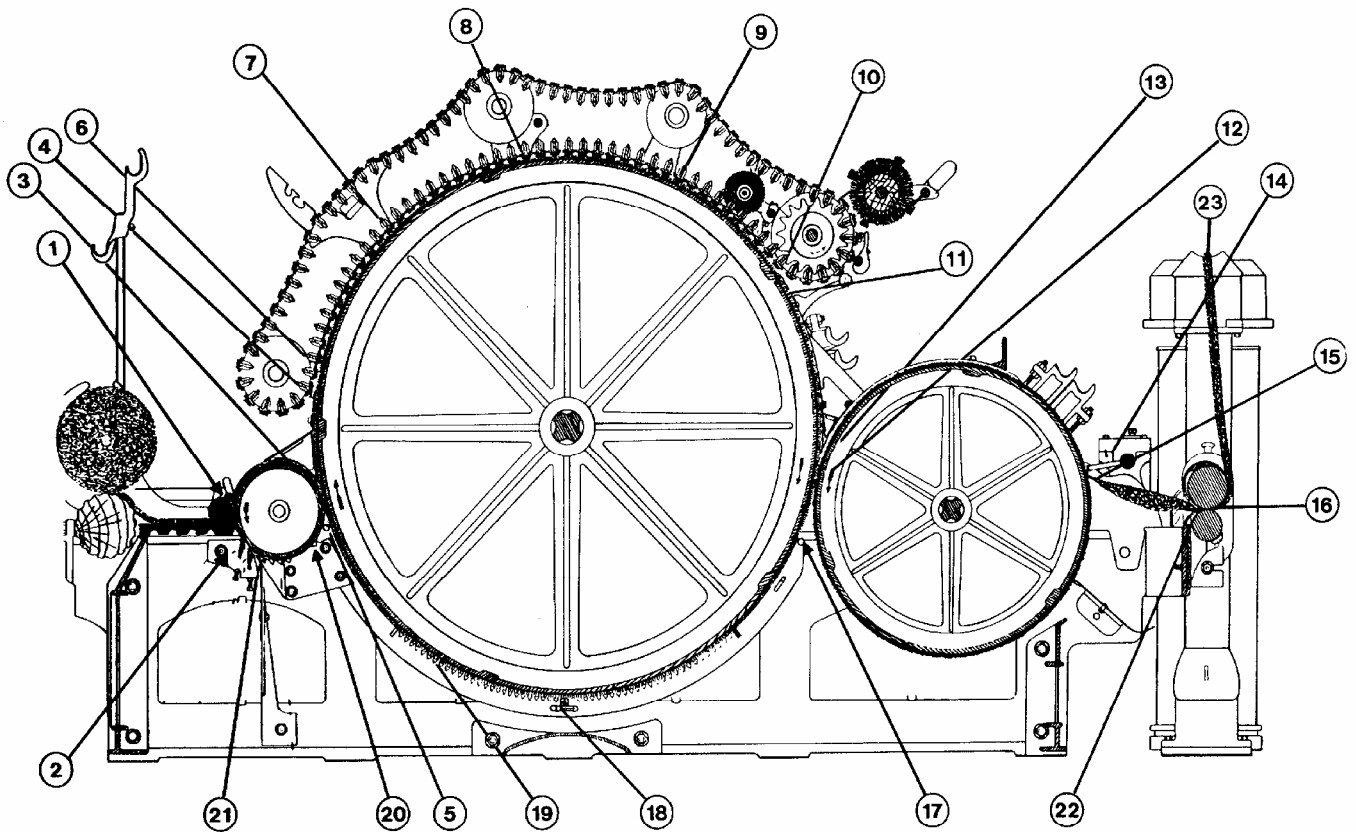
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TABLE OF ROUGH-SPUN YARN CARD SETTINGS

SETTING POINTS		ROUGH SPUN	COMMENTS
1	Feed Roll to Plate	.005	
2	Feed Plate to Lickerin	.040	
3	Lickerin to Cylinder	.040	
4	Back Plate Top	.040	
5	Bottom	.040	
6	Flats Back	.040	
7	Intermediate	.040	
8	Intermediate	.040	
9	Intermediate	.040	
10	Front	.040	
11	Front Plate Top	.034	
12	Bottom	.034	
13	Doffer to Cylinder	.040	
14	Take-Off Roll Top	No	
15	To Doffer Bottom	Crushing	
16	Calendar Roll		
17	Screen Front	Mill	
18	Middle	Standard	
19	Back	Setting	
20	Basket to Lickerin		
21	Nose to Lickerin		
22	Trumpet Card	Mill	
23	Hole Diameter Coiler	Standard Setting	
24	Arches to Cylinder (Not Shown)	Mill Standard Setting	

Note: Setting expressed in inches

CARD SETTING POINTS



SETTING POINTS FOR REVOLVING FLAT CARD

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Cotton Incorporated is a research and promotion company representing cotton worldwide. Through research and technical services, our company has the capability to develop, evaluate, and then commercialize the latest technology to benefit cotton.

- Agricultural research leads to improved agronomic practices, pest control, and fiber variants with properties required by the most modern textile processes and consumer preferences. Ginning development provides efficient and effective machines for preservation of fiber characteristics. Cottonseed value is enhanced with biotechnology research to improve nutritional qualities and expand the animal food market.
- Research in fiber quality leads to improved fiber testing methodology and seasonal fiber analyses to bring better value both to growers and then mill customers.
- Computerized fiber management techniques result from in-depth fiber processing research.
- Product Development and Implementation operates programs leading to the commercialization of new finishes and improved energy and water conserving dyeing and finishing systems. New cotton fabrics are engineered -- wovens, circular knits, warp knits, and nonwovens -- that meet today's standards for performance.
- Technology Implementation provides comprehensive and customized professional assistance to the cotton industry and its customers -- textile mills and manufacturers.
- A fiber-to-yarn pilot spinning center allows full exploration of alternative methods of producing yarn for various products from cotton with specific fiber profiles.
- The Company operates its own dyeing and finishing laboratory, knitting laboratory, and a laboratory for physical testing of yarn, fabric, and fiber properties including High Volume Instrument testing capable of measuring micronaire, staple length, strength, uniformity, color, and trash content.

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