

TECHNICAL BULLETIN



COTTON INCORPORATED

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COTTON INCORPORATED

PRODUCT DEVELOPMENT

LABORATORY

WHAT IS IT?

The Product Development Laboratory is a well-equipped research facility capable of producing a wide range of single knit, double knit, and woven fabric constructions. These constructions are produced using detailed layouts and designs conceived by the Product Development staff.

WHERE IS IT?

The Product Development Laboratory is located at the Cotton Incorporated World Headquarters in Cary, North Carolina.

HOW IS IT STAFFED?

The lab is staffed with textile engineers, technologists, and fabric designers with many years of experience in fabric development, commercial production, and fashion interpretation.

WHO CAN OBTAIN SERVICES?

Textile manufacturers, weavers, knitters, converters, and retailers with specific interests in producing or marketing all-cotton or NATURAL BLEND[®] textile products of U.S. cotton are eligible for services provided by the Product Development laboratory. Importers of cotton textile products into the U.S. are also eligible for these services. Requests for service should be directed to the Product Development Department at Cotton Incorporated in Cary.

WHAT ARE SOME ACTIVITIES OF THE LABORATORY?

1. Continual development of a variety of innovative cotton-containing textile products for apparel and home furnishing end uses. These products are presented in a FABRICAST[™] Information System format, which includes sample swatches as well as detailed technical information on yarn, fabric construction, machinery specifications, and finishing procedures. Also included are physical test data which details product performance.
2. Providing technical assistance to mills adopting or originating cotton or NATURAL BLEND[®] fabric concepts.
3. Providing knitted and woven products to facilitate evaluation of new yarns, new dyeing and finishing applications or techniques, and new cotton fiber varieties and qualities.

NOTE: NATURAL BLEND[®] is a registered trademark of Cotton Incorporated for blended products containing a minimum of 60% Upland Cotton which meet approved performance characteristics.

FABRICAST[™] is a trademark for Cotton Incorporated's fabric sample and information system.

PRODUCT DEVELOPMENT LABORATORY EQUIPMENT

	<u>Model</u>	<u>Description</u>
DOUBLE KNIT	Terrot UP 148	28 Cut, 48 Feeds, 30" Diameter, Mini Jacquard, Plain Fabrics
	Mayer OVJA-36	24 Cut, 36 Feeds, 30" Diameter, Full Jacquard, Plain Fabrics
	ALBI-RAM GT	18 Cut, 60 Feeds, 30" Diameter, Eightlock Machine with Two Tracks Dial and Cylinder plus Spandex Feeders.
	Monarch F LEC/2	18 Cut, 48 Feeds, 33" Diameter, Full Electronic Jacquard, Rib Gating
	Orizio CMO/C	14 Cut, 12 Feeds, 8" Diameter, One Track Rib Machine
SINGLE KNIT	Monarch VXT-JS3	28 Cut, 60 Feeds, 26" Diameter, Mini Jacquard, Plain Fabrics plus Spandex Feeders
	Monarch V-Sec PLT 12	24 Cut, 72 Feeds, 26" Diameter, Full Electronic Terry Fabrics plus Mini Jacquard Needle Selection
	Monarch SEC-Mini	18 or 24 Cut, 12 Feeds with 4 Color Automatic Striper, 20" Diameter, Full Electronic Jacquard
	FAK (Fiber Analysis Knitter)	10, 18 or 24 Cut, Single Feed, 10" Diameter, Single Jersey with Automatic Striper
	Carolina Knitter	10, 18, and 24 Cut, Single Feed, 3 1/2" Diameter, Single Jersey
	Lamb	24 Needles, Single Feed, 7/8" Diameter, Circular String Knitter
FLAT KNIT	Stoll-CMS340TC	7.2 Knit and Wear, 4 system, 16 Feeds Full Electronic with transfer tracking
	Dubied V Bed	10 Cut, 39 1/4" Bed

Cotton Incorporated Circular Knitting Machines

Machine	Type	Gauge/ Cut	Number of Feeds	Diameter	Number of Needles	Pattern Capabilities
<i>ALBI Ram-GT</i>	DK	18	60	30 in.	1680 x 2	Two Track
<i>Mayer OVJA</i>	DK	24	36	30 in.	2232 x 2	Pattern Drum 37 wales x 16 racks 36/# colors x 16 racks
<i>Monarch FLEC/2</i>	DK	18	48	33 in.	1868 x 2	Full Electronic
<i>Orizio CMO/C</i>	DK	14	12	8 in.	348 x 2	One Track
<i>Monarch Sec-Mini</i>	SK	18	12	20 in.	1156	Full Electronic Automatic Striper 4-Finger
<i>Monarch VXT-JS3</i>	SK	28	60	26 in.	2256	25 Step
<i>Monarch V-Sec PLT 12</i>	SK	24	72	26 in.	1920	Full Electronic Sinker 12 Step Needle
<i>Stoll</i>	FK	7.2	4 system	Flat 72 in. wide	1007	Full Electronic
<i>Terrot UP-148</i>	DK	28	48	30 in.	2648 x 2	25 Step

Pattern Capability Description:

Two Track SK – Machine can produce simple fabrications (single jersey, pique), simple jacquard patterns.

Two Track DK – Machine can produce simple fabrications (interlock, eightlock, rib, ponte di roma, ottoman, thermal), simple jacquard patterns.

Four Track DK & SK – Machine can produce simple fabrications and simple jacquard patterns (twice the pattern size capability of two-track).

Step Machine – Machine can produce simple fabrications as well as jacquard patterns. Pattern capability is restricted by number of steps.

Pattern Wheel – Machine can produce simple fabrications as well as jacquard patterns. Pattern capability is restricted by number of jacks in pattern wheel.

Full Electronic – Machine can produce simple fabrications to complex jacquards. The number of needles in the machine and the memory of the pattern-loading device only restrict pattern capability.

Cotton Incorporated CAD/CAM Software Systems

- Knits:** Monarch Design Systems featuring MKS™ (Monarch Knitting System) for knit design and fabric production. Stoll M1 Pattern Workstation software for flat knit design and production. Pointcarre for knit design.
- Wovens:** NedGraphics Dobby Pro for woven design and fabric simulation.
- 3-D Draping:** Lectra U4ia for 3-dimensional draping of knit and woven fabrics for apparel and home applications.
- Input/Output:** Canon 1180 Color Laser Copier for scanning, color printouts, and color copies. EPSON Stylus Photo 785EPX for woven simulation printouts. UMAX S-12 for scanning.

"The statements, recommendations, and suggestions contained herein are based on experiments and information believed to be reliable only with regard to the products and/or processes involved at the time. No guarantee is made of their accuracy, however, and the information is given without warranty as to its accuracy or reproducibility either express or implied, and does not authorize use of the information for purposes of advertisement or product endorsement or certification. Likewise, no statement contained herein shall be construed as a permission or recommendation for the use of any information, product, or process that may infringe any existing patents. The use of trade names does not constitute endorsement of any product mentioned, nor is permission granted to use the name Cotton Incorporated or any of its trademarks in conjunction with the products involved."

RESEARCH AND TECHNICAL SERVICES

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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