QUALITY STANDARD
for ELASTIC CIRCULAR KNIT FABRIC
CONTAINING BARE SPANDEX

I. PURPOSE

To establish a uniform method for measuring and determining the quality of elastic circular knit fabric containing bare spandex; and to promote a uniform understanding in the market as to the level of quality and the tolerances that constitute acceptable delivery of such fabrics.

II. APPLICABILITY

This standard applies to elastic circular knitted fabrics containing bare spandex. Other quality standards promulgated for circular knit fabrics in general shall not apply, except as provided herein.

III. METHOD FOR DETERMINING STRETCH:

The stretch capacity of the fabric is to be expressly stated by the Seller as a percentage of the specimen's original dimension when in a relaxed condition. The express specification in the contract shall govern; in the absence of any such express specification, the sample governs. The fabric's capacity for stretch shall be determined by a Scott tester IP4 or Zwick tester, according to the Seller's practice, equivalent to applying a 10 pound weight. The fabric shall be deemed to conform to the stretch specified if the test shows it to be within the tolerance of plus or minus ten (+ or - 10%) percent thereof.

IV. METHOD FOR DETERMINING MAXIMUM DEFECTS ACCEPTABLE

A. Four-Point System - Penalty points are attributed to a piece of fabric according to the length of the defects measured in inches. The following schedule of penalty points is based on fabrics 58-60 inches in width for defects visible when inspected on face side of fabric only:

LENGTH OF DEFECTS	NUMBER OF PENALTY POINTS
3 inches or less	1
Over 3 but not over 6 inches	2
Over 6 inches but not over 9 inches	3
Over 9 inches	4

1. Four penalty points per linear yard are the maximum assessable for fabrics up to 58-60 inches.

2. For fabrics over 58-60 inches in width, maximum penalty points are to be increased in proportion as the width exceeds 60 inches.

3. Regardless of the length of the fabric, the quality shall be expressed in the number of penalty points per 100 yard length. (Example: A 40 yard piece with six penalty points is to be rated as 15 points per 100 yards.)

B. Identification and Rating of Defects.

1. This method of evaluating quality relates only to:

   a. Knitting defects

   b. Grease-oil spots

   c. Dye spots

   d. Stains

   e. Slubs - except where they are an inherent part of the yarn

   f. Picks

2. Fabrics are to be examined for these defects only on the face side unless prior agreement made between Buyer and Seller expressly provides otherwise.

V. EXCLUSIONS IN EVALUATING QUALITY.
THE FOLLOWING CONDITIONS ARE TO BE EXCLUDED IN DETERMINING POINTS:

A. Pinholes (whether caused by knitting or tenter frame pins); they shall be judged by the extent and degree to which they occur and their probable effect on the type of garment or other end use.

B. Defects appearing outside selling width, selling width being centered in the total width of the fabric.

C. Barre. (This condition shall be judged by the extent and degree to which it occurs and its probable effect on the type of garment or other end use.)

D. Irregularities normal to the existing state of the art or beyond reasonable control of the manufacturer, or inherent in circular knitted fabrics.

E. General aesthetic fabric characteristics.

VI. QUALITY DETERMINATION

Determining first quality circular knitted fabrics shall be done as follows:

A. Basic fabrics shall be classified as first quality if the number of penalty points does not exceed 40 points per 100 yards. However, the maximum number of defects may not exceed 30 per 100 yards.

B. Face finish fabrics shall be classified as first quality if the number of penalty points does not exceed 50 points per 100 linear yards and the maximum defects does not exceed 38 per 100 linear yards.

C. Novelty fabrics are to be classified by the knitter in relation to difficulties of producing them. (Types of yarns, stitches, fibers, etc. affect the difficulties of production.) Novelty fabrics shall be classified as first quality if the number of penalty points does not exceed the maximum for the type(s) as designated by the Seller in the sales contract or by written notice prior thereto.

NOVELTY TYPE	MAXIMUM POINTS PER 100 LINEAR YARDS	MAXIMUM DEFECTS PER 100 LINEAR YARDS
A	70	53
B	75	57
C	80	60
D	85	64

NOTE: Laps: No more than three lapped pieces per 100 yards are allowable. The shortest unlapped portion of a piece shall not be less than 10 yards.

VII. SPECIFIED LENGTH, WIDTH, WEIGHT - Measurement and Tolerances Fabrics which contain bare spandex are inherently less stable than others.

A. Length - Length shall be measured with any surface contact device (Trumeter or equivalent) that is calibrated regularly. The device shall contact the back or a smooth surface of circular knitted fabrics (Preferred calibration method: Measure a know length of canvas or other stable, low elongation fabric - less than 3% in either direction - through the measuring device. Reference: ASTM D1910-64 hand method). Actual yardage of each piece shall be accurate to within plus or minus 55 when measured by the above method.

B. Width - Width shall be measured with an accurate tape after laying circular knit fabric flat on a table without tension or elongation. (Reference: ASTM 3887-80).

1. Conformity to the selling width of circular knit fabric shall be determined on the basis of one of the three following methods:

a. Width between gummed edges of gummed fabrics.

b. Width between tenter frame pin marks when pin marks remain in shipped fabrics.

c. Overall width of circular knit fabric when neither of the criteria in (a) and (b) exists.

NOTE: If width is stated in range such as 58-60 inches, the lower figure governs.

C. Tolerances - weight of circular knitted fabric may not vary by more than the greater of plus or minus .5 ounces or 7% from the stated weight. Standard weight is to be stated in a full figure as 6 ounces, not a range such as 6-6 1/2 ounces. Yield is to be based on individual roll measurements of length/pounds.

VIII. COLOR FASTNESS

A. Where the buyer specifies that color should be fast to swimming pool water, conformity shall be determined in accordance with the chlorine test in AATCC No. 162.

B. When testing for color fastness in point of the transfer, fabric to fabric in storage, the applicable test shall be AATCC No. 163; and when testing for transfer of dye when wet and in contact with white towels, the applicable test shall be AATCC No. 61.

C. The color fastness in washing shall be determined by Wast Test 2A.

IX. OPEN WIDTH FABRIC

A. Center crease may be inherent in certain open width fabrics and not be contribued as a defect.

X. BOW AND SKEW

(Same provisions shall apply as in Standard for circular fabrics, shown on the pages which follow.)

QUALITY STANDARD
FOR TRICOT FABRICS

I. PURPOSE

To establish a uniform method for determining, quantifying and measuring the quality of tricot knitted fabrics; and a method for measuring length and width; and to promote uniform understanding of certain technical terms by establishing definitions.

II. APPLICABILITY

This standard applies to:

A. Plain, flat finished tricot fabrics without raised fiber surfaces.

B. Tricot fabrics having a raised fiber surface produced either in knitting or by finishing procedures.

III. METHOD

A. Ten point system -- penalty points are attributed to a piece of fabric according to the length of its defects measured in inches. The following schedule of penalty points is based on fabrics 60/62 inches in width for defects visible when inspected on face side of fabric only:

LENGTH OF DEFECTS	NUMBER OF PENALTY POINTS
3 inches or less	1
Over 3 but not over 9 inches	5
Over 9 inches	10

1. Ten penalty points per linear yard are the maximum assessable for fabrics up to 60/62 inches in width.

2. For fabrics over 60/62 inches in width, maximum penalty points are to be increased in proportion as the width exceeds 60 inches, but a linear yard has a maximum assessable penalty point of ten.

B. Identification and rating of defects.

1. The types of defects in evaluating quality are only these:

   a. Knitting defects, including holes other than pin holes

   b. Grease-oil spots

   c. Dye spots

   d. Stains

   e. Slubs - except where they are an inherent part of the yarn

   f. picks

2. Bowing and skewing (bias); bowing may not exceed 3 inches and skewing may not exceed 3 inches per 60-inch width and any yard containing bowing or skewing in excess of these limits shall be penalized points.

3. Fabrics are to be examined for these defects only on the face side unless prior agreement made between buyer and seller expressly provides otherwise.

IV. EXCLUSIONS

In evaluating quality the following conditions are to be excluded in determining points:

A. General aesthetic fabric characteristics.

B. Pin holes (whether caused by knitting or tenter frame pins); they shall be judged by the extent and degree to which they occur and their probable effect on the type of garment or other end use.

C. Defects appearing outside the selling width, the selling width being centered in the total width of the fabric.

D. Defects resulting from napping shearing and other surface treatments (which shall be otherwise evaluated).

E. Irregularities normal to the existing state of the art or beyond reasonable control of the manufacturer, or inherent in tricot knitted fabrics.

F. Course and wale count shall not be considered.

V. QUALITY DETERMINATION

Determining first quality tricot fabrics shall be done as follows:

A. Plain flat tricot shall be classified as first quality if the number of penalty points are not equal to or greater than yardage length.

B. Fabrics with any raised fiber surface shall be classified as first quality if the number of penalty points does not exceed 20 percent of the length.

C. No major defect shall appear in first 10 yards or last 10 yards of any piece.

NOTE: Laps: No more than two lapped pieces in 100 yards. The shortest unlapped portion of a piece shall not be less than 10 yards.

VI. LENGTH, WIDTH, WEIGHT--MEASUREMENT AND TOLERANCES

A. Length - length shall be measured with any surface contact device (preferred calibration method: measure a known length of canvas or other stable, low elongation fabric--less than 2% in either direction--through the measuring device. Reference: ASTM D1910-64 hand method.) Actual yardage of each piece shall be accurate to within plus or minus 2% when measured by the above method.

B. Width--Width shall be measured with an accurate tape after laying tricot fabric flat on a table without tension or elongation. (Reference: ASTM 3887-80).

1. Conformity to the selling width of tricot fabric shall be determined on the basis of one of the three following methods:

a. Width between bummed edges of gummed fabrics.

b. Width between tenter frame pin marks when pin marks remain in shipped fabric.

c. Overall width of tricot fabric when neither of the criteria in (a) and (b) exists.

NOTE: If width is stated in a range such as 60/62 inches, the lower figure governs.

C. Tolerances

1. Weight -- weight of tricot fabrics per linear yard may not vary more than 5% (plus or minus) from the weight stated in the contract.

2. Wales -- variation in wales per inch may not exceed the values as stated below:

   a. Plain, flat fabrics -- five wales across the actual width of the fabric.

   b. Fabrics with a raised fiber surface -- seven wales across the actual width of the fabric.

VII. BOW AND SKEW (BIAS) -- DEFINITION AND MEASUREMENTS

A. Definitions

1. Bow -- a fabric condition resulting when knitted courses are displaced from a line perpendicular to the selvages and form one or more arcs across the width of the fabric.

2. Skewness (bias) -- a fabric condition resulting when knitted courses are angularly displaced from a line perpendicular to the edge or side of the fabric.

B. Measurement method

1. Bow -- a straightedge is placed across the fabric between the points at which a marked filling yarn of knitting course meets the two selvages or edges. The greatest distance between the straightedge and the marked filling yarn or course is measured parallel to the selvages.

2. Skewness or bias -- measure the skewness in three places spaced as widely as possible along the length of the fabric or along a minimum of 1 linear M (1 yard). If possible, make no measurement closer to the ends of the roll or piece of fabric then 1 m. Draw a line perpendicular to the selvage across the fabric from a point C where the marked yarn or course meets one selvage, meeting the other selvage at point B. Measure the distance between points A and B or D and B, and B and C. Record the three or more skewness or bias measurements. Calculate the maximum skewness or bias as a percentage of the fabric width using the following equation:

Skewness (bias), %

= (distance AB or DB X 100)/(width BC)

VIII. PHYSICAL PROPERTIES

A. Basic fabrics -- ASTM standard performance specification for textile fabrics.

B. Novelty fabric properties must be agreed between buyer and seller.

C. Buyer agrees that the seller makes no warranty in fact or in law that the fabric is suitable for any particular use or purpose.

11/24/71

QUALITY STANDARD
CIRCULAR KNITTED FABRICS

I. PURPOSE

To establish a uniform method for determining, quantifying and measuring the quality of circular fabrics; and a method for measuring length and width; and to define technical terms to promote understanding.

II. APPLICABILITY

These standards apply to the following types of circular knitted fabrics:

A. Basic Fabrics - including but not limited to finished single knit, rib, terry, double knit and interlock fabric.

B. Surface Finished Fabrics - including but not limited to finished velour, sanded, brushed, sueded, napped, fleeced, sheared, printed and bonded fabrics.

C. Novelty Fabrics - including but not limited to finished fabrics of surface interest yarns and stitches such as fabrics with slubs, nubs, loops, boucle, ratine, flakes, hair, blisters and fabrics of multiple blend yarns.

III. METHOD

A. Four-Point System - Penalty points are assessed to a piece of fabric according to the length of defects measured in inches. The following schedule of penalty points is based on fabrics 60-62 inches in width for defects visible when inspected on face side of the fabric only:

LENGTH OF DEFECTS	NUMBER OF PENALTY POINTS
3 inches or less	1
Over 3 but not over 6 inches	2
Over 6 inches but not over 9 inches	3
Over 9 inches	4

1. Four penalty points per linear yard are the maximum assessable for fabrics up to 60/62 inches in width.

2. For fabrics over 60/62 inches in width, maximum penalty points are to be increased in proportion as the width exceeds 60 inches.

3. Regardless of the length of the fabric, the quality shall be expressed in the number of penalty points per 100 yard length. (Example: A 40 yard piece with six penalty points is to be rated as 15 points per 100 yards.)

B. Identification and Rating of Defects.

1. This method of evaluating quality relates only to:

a. Knitting defects

b. Grease - oil spots

c. Dye spots

d. Stains

e. Slubs - except where they are an inherent part of the yarn

f. picks

2. Bias/Bowing may not exceed 5% of cuttable width for solids and any yard containing bias or bowing in excess of these limits shall be penalized four points. 2.5% will be the limit for stripes/plaids. *See formula Section VII.

3. Fabrics are to be examined for these defects only on the face side unless prior agreement made between Buyer and Seller expressly provides otherwise.

IV. QUALITY DETERMINATION

Determining first quality circular knitted fabrics shall be done as follows:

A. Basic fabrics shall be classified as first quality if the number of penalty points does not exceed 40 points per 100 linear yards. However the maximum number of defects may not exceed ~~25~~ 21 per 100 yards.

B. Surface finished fabrics shall be classified as first quality if the number of penalty points does not exceed 50 points per 100 linear yards.

C. Novelty fabrics are to be classified by the knitter in relation to difficulties of producing them. (Types of yarns, stitches, fibers, etc. affect the difficulties of production.) Novelty fabrics shall be classified as first quality if the number of penalty points does not exceed the maximum for the type(s) as designated by the Seller in the sales contract or by written notice prior thereto:

NOVELTY TYPE	MAXIMUM POINTS PER 100 LINEAR YARDS	MAXIMUM ALLOWABLE DEFECTS PER 100 LINEAR YARDS
A	70	43
B	75	47
C	80	50
D	85	53

NOTE: Laps: No more than 3 lapped pieces per 100 yards are allowable. The shortest unlapped portion of a piece shall not be less than 10 yards. In P.F.P. fabrics, all laps are to be sewn in each roll. No more than 25% of a lot can contain laps.

V. EXCLUSIONS IN EVALUATING QUALITY, THE FOLLOWING CONDITIONS ARE TO BE EXCLUDED IN DETERMINING POINTS:

A. General aesthetic fabric characteristics.

B. Defects appearing outside selling width, selling width being centered in the total width of the fabric.

C. Conditions resulting from napped, shearing and other surface treatments (which shall be otherwise evaluated).

D. Barre. (This condition shall be judged by the extent and degree to which it occurs and its probable effect on the type of garment or other end use.)

E. Irregularities normal to the existing state of the art or beyond reasonable control of the manufacturer, or inherent in circular knitted fabrics.

VI. LENGTH, WIDTH, WEIGHT - Measurement and Tolerances

A. Length - length shall be measured with any surface contact device (Trumeter or equivalent) that is calibrated regularly. The device shall contact the back or a smooth surface of circular knitted fabrics. (Preferred calibration method: Measure a known length

of canvas or other stable, low elongation fabric - less than 2% in either direction - through the measuring device. References: ASTM D1910-64 hand method.) Actual yardage of each piece shall be accurate to within plus or minus 2% when measured by the above method.

B. Width - Width shall be measured with an accurate tape after laying circular knit fabric flat on a table without tension or elongation. (Reference: ASTM 3887-80).

1. Conformity to the selling width of circular knit fabric shall be determined on the basis of one of the three following methods:

a. Width between gummed edges of gummed fabrics.

b. Width between tenter frame pin marks when pin marks remain in shipped fabrics.

c. Overall width of circular knit fabric when neither of the criteria in (a) and (b) exists.

NOTE: If width is stated in range such as 60/62 inches, the lower figure governs cuttable width.

C. Tolerances - weight of circular knitted fabric may not vary by more than plus or minus 5% from the stated weight. Standard weight is to be stated in a full figure as 6 ounces, not a range such as 6-6 1/2 ounces. Yield is to be based on individual roll measurements of length/pounds.

VII. BOW AND SKEW (BIAS) - DEFINITIONS AND MEASUREMENTS

A. Definitions

1. Bow - a fabric condition resulting when knitted courses are displaced from a line perpendicular to the selvages and form one or more arcs across the width of the fabric. (See Fig. 1)

2. Skewness (Bias) - a fabric condition resulting when knitting courses are angularly displaced from a line perpendicular to the edge or side of the fabric. (See Fig. 2)

B. Measurement Method

1. Bow - a straightedge is placed across the fabric between the points at which a marked filling yarn or knitted course meets the two selvages or edges. The greatest distance between the straightedge and the market filling yarn or course is measured parallel to the selvages. (Fig. 1 Distance "D")

2. Skewness or Bias - measure the skewness in three places spaced as widely as possible along the length of the fabric (1 yd.). If possible, make no measurement closer to the ends of the roll or piece of fabric than 1 m. Draw a line perpendicular to the selvage across the fabric from a point C where the marked yarn or course meets one selvage, meeting the other selvage at point B. Measure the distance between point A and B or D and B, and B and C, as shown in Fig. 2. Record the three or more skewness or bias as a percentage of the fabric width using Eq. 2:

Skewness (bias) %

= (Distance AB or DB X 100/ [width BC])

ADD TEST METHODS FOR SHRINKAGE, STRETCH, BURST STRENGTH, PILLING, COLOR FASTNESS (et al) FLAMMABILITY.

QUALITY STANDARD
FOR RASCHEL KNITTED FABRICS

I. PURPOSE:

To establish the uniform method for determining, quantifying and measuring the quality of Raschel fabrics; and a method for measuring length and width; and to promote uniform understanding of certain technical terms by establishing definitions.

II. APPLICABILITY:

This standard applies to:

Fabrics for apparel and apparel accessories of the following types:

A. Basic, flat finished Raschel fabrics.

B. Fabrics with a textured (raised) surface produced either in knitting or by finishing procedures.

C. Novelty fabrics.

NOTE: Fabrics for other end uses made subject hereto by express agreement between Buyer and Seller.

III. METHOD:

A. Four-Point System -- Penalty points are attributed to a piece of fabric according to the length of the defects measured in inches. The following schedule of penalty points is based on fabrics 60-62 inches in width for defects visible when inspected on face side of fabric only:

LENGTH OF DEFECTS	NUMBER OF PENALTY POINTS
3 inches or less	1
Over 3 but not over 6 inches	2
Over 6 inches but not over 9 inches	3
Over 9 inches	4

1. Four penalty points per linear yard are the maximum assessable for fabrics up to 60/62 inches in width.

2. For fabrics over 60/62 inches in width, maximum penalty points are to be increased in proportion as the width exceeds 60 inches.

3. Regardless of the length of the fabric, the quality shall be expressed in the number of penalty points per 100 yard length. (Example: A 40 yard piece with six penalty points is to be rated as 15 points per 100 yards.)

B. Identification and Rating of Defects.

1. The types of defects in evaluating quality are only these:

a. Knitting defects, including holes other than pin holes

b. Grease - oil spots

c. Dye spots

d. Stains

e. Slubs - except where they are an inherent part of the yarn.

f. Picks

2. Bowing and Skewing (bias); bowing may not exceed 3 inches per 60 inch width and any yard containing bias or bowing in excess of these limits shall be penalized four points.

3. Fabrics are to examined for these defects only on the face side unless prior agreement made between Buyer and Seller expressly provides otherwise.

IV. EXCLUSIONS

In evaluating quality the following conditions are to be excluded in determining points:

A. General aesthetic fabric characteristics.

B. Pinholes (whether caused by knitting or tenter frame pins); they shall be judged by the extent and degree to which they occur and their probable effect on the type of garment or other end use.

C. Defects appearing outside the selling width, selling width being centered in the total width of the fabric.

D. Defects resulting form napping, shearing and other surface treatments (which shall be otherwise evaluated).

E. Irregularities normal to the existing state of the art or beyond reasonable control of the manufacturer or inherent in Raschel knitted fabrics.

V. QUALITY DETERMINATION

Determining first quality Raschel knitted fabrics shall be done as follows:

A. Basic fabrics shall be classified as first quality if the number of penalty points does not exceed 40 points per 100 linear yards. However, the maximum of defects may not exceed 25 defects per 100 yards.

B. Raised surface fabrics shall be classified as first quality if the number of penalty points does not exceed 50 points per 100 linear yards. However, the maximum number of defects may not exceed 31 per 100 linear yards.

C. Novelty fabrics shall be classified as first quality if the number of penalty points does not exceed 60 per 100 linear yards. However, the maximum number of defects may not exceed 37 defects per 100 linear yards. Novelty fabrics are to be so designated by Seller. Novelty fabrics are those whose production involves special difficulties includingthose arising from special types of yarn, stitches, fibers or other factors. Fabrics are to be classified if they are thus designated in the sales contract or in other written notice given by the Seller to the Buyer. However, the maximum shall not exceed 37 defects per 100 yards.

NOTE: Laps: No more than 3 lapped pieces per 100 yards are allowable and not more than 1 lap in less than 100 yards. The shortest unlapped portion of a piece shall not be less than 10 yards.

VI. LENGTH AND WIDTH - MEASUREMENT METHODS

A. Length - Length Shall be measured with any surface contact device (Trumeter or equivalent that is calibrated regularly. The device shall contact the back or a smooth surface of Raschel knitted fabrics. (Preferred calibration method: Measure a known length of canvas or other stable, low elongation fabric - less than 2% in either direction - through the measuring device. Reference: ASTM D1910-64 hand method.) Actual yardage of each piece shall be accurate to within plus or minus 2% when measured by the above method.

B. Width-Width shall be measured with an accurate tape after laying Raschel knit fabric flat on a table without tension or elongation. (Reference: ASTM 3887-80).

1. Conformity to the selling width of Raschel knit fabric shall be determined on the basis of one of the three following methods:

a. Width between gummed edges of gummed fabrics.

b. Width between tenter frame pin marks when pin marks remain in shipped fabrics.

c. Overall width of Raschel knit fabric when neither of the criteria in (a) and (b) exists.

NOTE: If width is stated in range such as 60/62 inches, the lower figures governs.

VII. BOW AND SKEW (BIAS) - DEFINITIONS AND MEASUREMENTS.

A. Definitions

1. Bow - a fabric condition resulting when knitted courses are displaced from a line perpendicular to the selvages and form one or more arcs across the width of the fabric. (See Fig. 1)

2. Skewness (Bias) - a fabric condition resulting when knitted courses are angularly displaced from a line perpendicular to the edge or side of the fabrics. (See Fig. 2)

B. Measurement Method

1. Bow - a straightedge is placed across the fabric between the points at which the marked filling yarn or knitting course meets the two selvages or edges. The greatest distance between the straightedge and the marked filling yarn or course is measured parallel to the selvages. (Fig. 1 Distance "D")

2. Skewness or Bias - measure the skewness in three places spaced as widely as possible along the length of the fabric or along a minimum of 1 linear m (1 yd). If possible, make no measurement closer to the ends of the roll or piece of fabric than 1 m. Draw a line perpendicular to the selvage across the fabric from a point C where the marked yarn or course meets one selvage, meeting the other selvage at point B. Measure the distance between points A and B or D and B , and B and C, as shown in Fig. 2.

Record the three or more skewness or bias measurements. Calculate the maximum skewness or bias as a percentage of the fabric width using Eq. 2:

Skewness (bias), %

= (Distance AB or DB x 100/ (Width BC)

VIII. PHYSICAL PROPERTIES

A. Basic Fabrics -- ASTM standard performance specification for textiles fabric.

B. Novelty fabric properties must be agreed between buyer and seller.

C. Buyer agrees that the seller makes no warranty in fact or in law that the fabric is suitable for any particular use or purpose.