I. SCOPE

This method describes specific procedures for the quality assurance of elastomeric bridge bearings manufactured for Department projects. It encompasses a strict control system whereby only those bearings designed and therefore designated for specific projects are inspected, sampled and tested for eventual shipment to that project.

Bridge bearings with a design plan area of 0.4m² or less will be considered for acceptance strictly in conformance with the details of this procedure. Bearings designed with a plan area greater than 0.4m² will also be considered as detailed in this procedure, except that some of the testing may be performed by a laboratory designated and approved by the Department, rather than by the Materials Bureau.

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III. DEFINITIONS

A. Manufacturer - A company actually engaged in the production of elastomeric bearings at a given location.

B. Department - The New York State Department of Transportation.

C. Deputy Chief Engineer (Structures) - An official of the Department of Transportation who may be contacted by mailing to:

Deputy Chief Engineer, Structures
Building 5, Room 600
New York State Department of Transportation
W. Averill Harriman State Office Campus
1220 Washington Avenue
Albany, NY 12232-0600

or
by telephoning (518) 457-6825.

D. Materials Bureau - A facility of the New York State Department of Transportation which may be contacted by mailing to:

Director, Materials Bureau
Building 7A, Room 200
New York State Department of Transportation
W. Averill Harriman State Office Campus
1220 Washington Avenue
Albany, NY 12232-0861

or
by telephoning the Materials Administration Office of the Materials Bureau at (518) 457-5642.

or
by faxing at (518) 457-8171

E. Inspection Authority - An office designated by the Materials Bureau as responsible for inspection control on behalf of the Department at specific manufacturing locations.

F. Plant Inspector - An individual employed by the Inspection Authority and approved by the Materials Bureau to function on inspection assignments in behalf of the Department.

G. Plain Elastomeric Bridge Bearings - A bearing composed entirely of elastomeric material cast in a mold under pressure and heat. A bearing may also be cut from a larger piece of elastomeric material. Any external load bearing steel plate(s) shall be factory vulcanized to the elastomeric bearings during the primary molding process.

H. Regional Director - An official of the Department of Transportation delegated to execute the prescribed work for their respective region. The mailing address of the regional offices are detailed in the Appendices, page 24.

I. Steel Laminated Elastomeric Bridge Bearings - A bearing composed of multiple laminates of elastomeric material separated by steel plates. The bearings shall be cast as a unit or cut from a larger section that has been cast as a unit in a mold under pressure and heat. The steel plates separating the elastomeric layers shall be completely bonded by vulcanization to the elastomeric material on all surfaces. Any external load bearing steel plate(s) shall be factory vulcanized to the elastomeric bearings during the primary molding process.
J. Fabric Laminated Elastomeric Bridge Bearings - A bearing composed of multiple laminates of elastomeric material separated by fabric sheets. The bearings shall be cast as a unit or cut from a larger section that has been cast as a unit in a mold under pressure and heat. The fabric sheets separating the elastomeric layers shall be completely bonded by vulcanization to the elastomeric material on all surfaces. Any external load bearing steel plate(s) shall be factory vulcanized to the elastomeric bridge bearings during the primary molding process.

K. Sliding Elastomeric Bridge Bearings - A bearing consisting of a plain or steel laminated elastomeric element bonded to a lower steel bearing plate. To allow movement, the upper surface of the element shall be faced with a steel backed, polytetrafluoroethylene (PTFE) sheet and support a sliding top bearing plate. The mating surface of the top steel bearing plate shall be faced with polished stainless steel.

L. Lot - One or more bearings of the same item and size manufactured in a reasonably continuous manner in accordance with Department approved drawings.

M. Forms - The following forms are published by the Department for use by the Materials Bureau and Inspection Authorities.

1. BR240, Sample and Acceptance Transmittal
   - This form transmits the inspector's sample information to the Materials Bureau and, upon validation, conveys acceptance/rejection action to the inspector. Detailed instructions for proper completion and transmittal are contained in Materials Method NY 18.1.

2. BR241, Transmittal Envelope
   - This is a heavy duty envelope used to contain the BR240.

3. BR195, Shipment Authorization
   - This form, executed by the inspector, accompanies all shipments by the supplier to the project. Detailed instructions for proper completion and transmittal are contained in Materials Method NY 18.2.

N. Seals - Red tape seals imprinted "NYSDOT Sampled" are used to provide security of packages containing samples submitted to the Department.

IV. EVIDENCE OF ACCEPTABILITY

A. At the Manufacturing Plant - Appropriate copy of Form BR240 in the possession of the Inspector, properly noted with the word "accepted" and validated by the Materials Bureau.

B. At the Project Site

1. Buff copy of Shipment Authorization Form BR195 with each delivery.
2. A validated green copy of Form BR195 subsequent to the delivery.
3. Double Inspection Authority Stamp or one Inspection Authority Stamp with one "NYSDOT Accepted" stamp on each unit.
V. DRAWING APPROVAL & INSPECTION ASSIGNMENT

RESPONSIBILITY                     ACTION

Contractor

1. Submits to the Regional Director of project jurisdiction triplicate prints of preliminary shop drawings, drawn by the bearing manufacturer in accordance with the contract documents.

Regional Director

2. Reviews the working drawings and returns one print to the manufacturer with approval or the required corrections indicated thereon.

Manufacturer

3. Makes the necessary corrections as indicated, and when completed, forwards the original tracing to the Regional Director.

Regional Director

4. Reviews the completed tracing, and if acceptable, returns an approved print to the manufacturer for further distribution. (If unacceptable, the tracing will be returned to the manufacturer for correction.)

Manufacturer

5. Transmits one paper print copy of the approved drawing to the Materials Bureau.

6. Transmits one vellum reproducible of the approved drawing to the Deputy Chief Engineer (Structures).

Materials Bureau

7. Assigns an Inspection Authority and forwards copies of the approved drawings to them with a letter detailing the specific bearing item(s) required.

Inspection Authority

8. Makes preliminary contact with the manufacturer.

9. Scheduled an inspection visit.

10. Assigns an inspector to make the visit.

Inspector

11. Reviews the specification(s) and Quality Assurance Procedure prior to an inspection visit. Questions should be directed to the Materials Bureau at (518) 457-5642.
VI. INSPECTION

The inspector shall possess the letter assigning the inspector to perform Department inspection, the Department approved drawings, the specification, and this Materials Method. The above references shall be utilized by the inspector in performing the required inspection services.

RESPONSIBILITY

Manufacturer

ACTION

1. Manufactures all bearings to be included in a lot to be considered for Department acceptance.

2. Arranges for a clean, well lighted location, at the manufacturing site, for the inspector to evaluate all of the bearings to be considered for acceptance by the Department.

3. Maneuvers the bearings as required by the inspector to provide easy access for all measurements to be made.

4. Identifies indelibly each bearing on the side with the following minimum information:
   a. Manufacturer's name.
   b. Department Contract Number D ________.
   c. Lot number - the manufacturer shall start with lot number 1 and number consecutively throughout the Calendar year.
   d. Each individual bearing in the lot shall be numbered individually, 1 through ______.

5. Prepares copies of the following certifications to give the Inspector to accompany the samples selected by the Inspector.
   a. All steel, both external and internal, indicating conformance to Department requirements.
   b. A statement as to the domesticity of the steel as follows:
      Domestic - Conforms to NYS EB 83-10
      OR
      Foreign - Does not conform to NYS EB 83-10.
   c. For sliding elastomeric bearings only: A statement from the manufacturer indicating sample sheets of Polytetrafluoroethylene (PTFE) and elastomer are from the same batches of material used in the actual production of the bearings.

6. Determines that all bearings to be included in a lot have been manufactured and are present to inspect. Bearings not presented for inspection at this time are not to be included in this lot, even though they may be of the same size and shape; they will be considered as a separate lot(s) when presented for inspection.

7. Measures, records, and evaluates the gross dimensions of each bearing and the external load plates as detailed on the approved drawing.

8. Measures and records the flatness of each sole (top) and masonry (bottom) plate utilizing the method as detailed on pages 10-11.
RESPONSIBILITY

Inspector

ACTION

9. Determines the parallelism of the fabric reinforcement or internal steel plates and individual layers of elastomer in accordance with the procedure as detailed on pages 12-13.

10. Checks bearings to determine the manufacturer has identified each bearing as required by the specification.

11. Places one inspection agency stamp on each bearing adjacent to the manufacturer's identifiers. This stamp will signify the bearings have been inspected.

12. Notifies the Materials Bureau by telephone and the manufacturer when dimensions, including parallelism and laminate thickness do not meet Department requirements.

Materials Bureau

13. Upon receipt of a telephone call from the inspector detailing deficiencies when they occur, a decision will be made to either reject the bearings or continue with the procedure and our evaluation of the bearings.

Inspector

14. Prepares a written report detailing the gross dimensions, laminate thickness and parallelism of all the bearings evaluated.

Inspection Agency

15. The detailed written report is transmitted to the Materials Bureau within one working day from the date of inspection.
VII. SAMPLING & TESTING

The sampling and testing procedures detailed below shall be performed in their entirety for bridge bearings of 0.4m² plan area or less. The sampling and testing procedures for bridge bearings of a plan area greater than 0.4m² will be conceptually the same as detailed below. The testing location however, is subject to change.

The contractor shall notify the Materials Bureau of their intention to supply bridge bearings in excess of a 0.4m² plan area and request the Department's quality assurance procedure for those bearings.

Note: One sample bearing from each lot of Plain Elastomeric Bridge Bearings and Fabric Laminated Elastomeric Bridge Bearings will be destroyed during testing to determine specification compliance.

One sample bearing from each lot of Steel Laminated Elastomeric Bridge Bearings with bonded top and bottom load plates will be destroyed if a sample size of elastomer equivalent to twelve (12) 25.0mm x 150.0mm x 3.0mm thick pieces cannot be removed from the sides of the sample bearings for evaluation.

The manufacturer shall allow for the above destructive testing in their production.

RESPONSIBILITY

Inspector

1. Selects samples at the rate detailed in the specific item of the Standard Specifications (a tabulated summary of the specified number of sample bearings is shown on page 12). The samples shall be selected by using the random number table found on page 25.

2. Completes Form BR240, Sample and Acceptance Transmittal in accordance with Materials Method NY 18.1. Examples of completed Form BR240 are shown on pages 21-22. (Take special note of the example for Elastomeric Sliding Bearings Figure G which includes samples of PTFE and Elastomer.)

3. For Elastomeric Sliding Bridge Bearings, obtains from the manufacturer the following sheets representing material incorporated in the bearings.

   a. One sheet of elastomer 250mm x 375mm (10 mm thickness) representing each lot. The manufacturer shall supply a certification indicating that the sample sheet was from the same batch of material as used in the actual production bearings.

   b. One sheet of Polytetrafluoroethylene (PTFE) 250mm x 375mm of the thickness used on each lot of bearings. When PTFE of more than one thickness is used, a separate 250mm x 375mm sheet will be required for each thickness. The manufacturer shall supply a certification indicating the sample sheet(s) was from the same batch of material as used in the actual production bearings.

Manufacturer

4. Securely packages the samples with the BR240's enclosed in the BR241 envelope and ships to the Materials Bureau at the expense of the Contractor.

Note: The packages containing the Elastomer and PTFE for Sliding Elastomeric Bearings shall be sealed by the Inspector with Department tape seals.
RESPONSIBILITY

Materials Bureau

ACTION

5. Performs the required tests.

6. Determines appropriate action based on the results of the required tests.

VIII. ACCEPTANCE/REJECTION ACTION

RESPONSIBILITY

Materials Bureau

ACTION

1. Executes appropriate action on Form BR240.

2. Issues validated Form BR240 to the Inspection Authority as described in Materials Method NY 18.1.

   a. Telephone requests to the Materials Bureau in advance of normal notification will be only honored when received from the Inspector.

3. Identifies accepted bearings by stenciling "NYSDOT Accepted" adjacent to the Inspection Agency Stamp.

4. Holds rejected bearings until disposition is requested by the manufacturer. All shipments of these bearings will be at the Manufacturer's expense.

Inspection Authority

ACTION

5. Receives validated copies of Form BR240 and notifies the manufacturer of Department action.

Inspector

ACTION

6. Each bearing accepted by the Department represented by the samples tested by the Materials Bureau shall be stamped with a second Inspection Agency stamp adjacent to the first.

7. When the inspector informs the manufacturer that bearings have been rejected, no further action is required by the Inspection Agency.

IX. SHIPPING

The manufacturer shall not ship bridge bearings prior to acceptance by the Department. All shipments will be made as follows:

RESPONSIBILITY

Inspector

ACTION

1. Completes a Form BR195, "Shipment Authorization" in accordance with Materials Method NY 18.2 authorizing shipment of the balance of the bearings to the project site. (See Example, Figure I, page 23.)

Manufacturer

2. Notifies the Materials Bureau of the address to ship the accepted bearings which are in the possession of the Materials Bureau as test samples.

3. Ships the bearings accompanied with the buff (card) copy of Form BR195.
RESPONSIBILITY

Materials Bureau

ACTION

4. Completes a Form BR195, "Shipment Authorization" to the project site as designated by the manufacturer and ships the sample bearings at the Contractor's expense.

5. Validates copies of Form BR195 completed by the inspector and Materials Bureau to the Region office of project jurisdiction.
Measuring Flatness of Steel Plates for Bridge Bearings

SCOPE: This method describes the specific procedure for measuring flatness of external steel plates for bridge bearings.

APPARATUS:

1. A precision straight edge, at least 25mm longer than the dimension to be checked.
2. A feeler gauge capable of readings to the nearest .025mm

   Note: Because "layering" of shim type feeler gauges tends to distort accuracy, a single blade shall be used whenever possible.

PROCEDURE

1. Place the plate to be measured on a flat surface, uniformly supported, with the surface to be checked in a horizontal position. (Complete bridge bearing assemblies are considered to meet this requirement.)

2. Plates shall be checked for flatness at the approximate center lines and also 25mm from and parallel to, each outside edge, a total of six positions. The dotted lines in Figures A & B on page 11 show where the straight edge shall be held.

3. Position the straight edge as parallel to the central axis of the plate as possible. On a surface with a raised center, it will be necessary to temporarily shim the straight edge for stability. (See Example, Figure B, page 11.)

4. Hold the blade of the straight edge perpendicular to the surface at the predetermined locations, with adequate pressure to hold it in position. Attempt to slide the desired blade of the feeler gauge between the surface being measured and the straight edge, along the entire length of the piece. On sole plates, the areas within 25mm of the edges parallel to the center line of the girder will not normally be in bearing and need not be checked. (See Example, Figure A, page 11) Check drawings if in doubt. Masonry plates will be checked across the entire area.

5. If the specified blade thickness will freely slide under the straight edge at any location, the inspector shall notify the manufacturer of the "out of flat" condition and the Materials Bureau to request the appropriate action. The results of testing shall be included in the written report transmitted to the Materials Bureau (include actual "out of spec" measurements).
Measuring Laminate Thickness and Parallelism for Bridge Bearings

**SCOPE:** This procedure shall be used for determining the laminate thickness and parallelism of internal steel plates or fabric, of steel or laminated elastomeric bridge bearings.

**APPARATUS:**

1. A device such as a grinder used to remove thin strips of elastomer from the edge cover of the bridge bearings.
2. Calipers graduated to 0.5mm and/or dividers and a machinist's scale graduated to 0.5mm.

**PROCEDURE:**

1. Locate the shape factor, effective rubber thickness (ERT) and individual laminate thickness on the shop drawings as approved by the Regional Director.
   a. The shape factor must be 12.0 or less to utilize this procedure. If the shape factor is greater than 12.0, the Inspector shall call the Materials Bureau for further instructions.
   b. Calculate 75% of the Effective Rubber Thickness (ERT) to determine specification limits.
   c. Calculate ±20% of the individual laminate thickness to determine specification limits.

2. The Inspector randomly selects the required number of sample bearings by using the random number table found on page 25. The sample schedule is as follows:

<table>
<thead>
<tr>
<th>Lot Size</th>
<th>Number of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>All</td>
</tr>
<tr>
<td>5-16</td>
<td>4</td>
</tr>
<tr>
<td>17-20</td>
<td>5</td>
</tr>
<tr>
<td>21-24</td>
<td>6</td>
</tr>
<tr>
<td>25-28</td>
<td>7</td>
</tr>
<tr>
<td>29-32</td>
<td>8</td>
</tr>
<tr>
<td>33-36</td>
<td>9</td>
</tr>
<tr>
<td>37-40</td>
<td>10</td>
</tr>
<tr>
<td>41 or greater</td>
<td>1 additional bearing for every 4 in the lot</td>
</tr>
</tbody>
</table>

**Note:** Whenever possible, the bearings sampled for parallelism and laminate thickness measurements shall not be included in the random selection of bearings submitted to the Materials Bureau for testing. The sampling rate for the bearings submitted to the Materials Bureau is as detailed in the Standard Specifications for the appropriate item.

3. For Steel Laminated Bridge Bearings ONLY, the Manufacturer grinds off or removes a thin strip of elastomer along the vertical surface of the bearing at four points located 90° apart about the perimeter. For rectangular bearings, this will be the midpoint of each side exposing the internal steel plates through the bearings thickness. The ground strip shall be as narrow as possible to minimize the exposure of the steel plates, yet wide enough to accurately locate the plates and measure the laminate thickness between them.

**Note:** For small size bearings or small lots (i.e. 4 bearings or less) care should be taken to preserve an area on one bearing of at least 150mm in length by the full bearing thickness such that a sample of elastomer can subsequently be removed for testing by the Materials Bureau. If necessary, the grinding of one side of the bearing may be omitted.
4. The inspector measures and records the thickness of each elastomeric laminate at the four quarter-point perimeter locations. Vernier calipers or dividers and a machinist scale shall be used and measurements recorded to the nearest 0.5mm.

For steel laminated bearings, the thickness of the elastomer shall be measured between the individual steel laminates or between the top or bottom edge of the bearing to the first adjacent steel laminate. (See examples 1 and 2 on pages 16 and 17.) For fabric laminated bearings, the thickness of the elastomer shall be measured from the approximate midpoint of the double ply fabric to the midpoint of the next adjacent double ply fabric laminate or the top or bottom edge of the bearing to the midpoint of the first double ply fabric laminate. (See examples 3 and 4 on pages 18 and 19.)

Note: Only working laminates will be evaluated to determine the parallelism of the internal steel plates and fabric reinforcement. Occasionally a bearing is designated with a bedding layer that is not a working laminate and therefore should not be included in the evaluation.

Bedding layers can be identified by referring to the Department approved drawings. The bedding layer, when included, will be the outermost layer (top, bottom, or both). To determine if those layers are bedding layers, total the thickness of all layers of the elastomer as shown on the drawings rounding the sum off to the nearest 0.5mm. If the total is equal to the Effective Rubber Thickness (ERT) as detailed on the drawing, all layers are working laminates and shall be included in the parallelism determination. When the sum is greater than the ERT, subtract the thickness of one or both of the outermost layers to determine which should be deleted to evaluate only working laminates.

Should the inspector have any questions on a specific bearing pad of working laminate versus bedding layer, please contact the Materials Bureau at (518) 457-5642.

5. For determining the parallelism of steel plates and fabric reinforcement, the inspector will record the smallest measured thickness of each layer from the four quarter-point locations which is defined as the working laminate thickness and proceed as follows:

a. Determine the sum of the working laminate thickness for each bearing evaluated.

b. The total working laminate thickness shall be equal to or greater than 75% of the ERT.

c. If the total is less than 75% of the ERT, the inspector shall notify the Materials Bureau immediately requesting appropriate action. (See Example 2, page 17.)

6. For determining the laminate thickness, the inspector will calculate the average of the four measurements for each laminate and proceed as follows:

a. Compare the average thickness with the laminate thickness detailed on the approved drawing applying a ±20% tolerance.

b. If the average exceeds the ±20% tolerance, the inspector shall notify the Materials Bureau immediately requesting the appropriate action. (See Example 4, page 19.)

7. Record and report all individual measurements and calculations to the Materials Bureau. (See Examples 1-4 on pages 16-19.)
## Samples Required for Materials Bureau Testing

<table>
<thead>
<tr>
<th>Item</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>716-02, Plain Elastomeric Bridge Bearings</td>
<td>Three (3) full size bearings per size per contract.</td>
</tr>
<tr>
<td>716-04, Steel Laminated Elastomeric Bridge Bearings</td>
<td>One (1) full size bearing per every five in each size category, per project, per production run, a minimum of three (3) bearings.</td>
</tr>
<tr>
<td>716-08, Elastomeric Sliding Bridge Bearings</td>
<td>One (1) full size bearing per every five in each size category, per project, per production run, a minimum of three (3) bearings.</td>
</tr>
<tr>
<td></td>
<td>One 250mm x 375mm (10mm thickness) sheet of elastomeric material per project, per production run.</td>
</tr>
<tr>
<td></td>
<td>One 250mm x 375mm sheet of PTFE material per project per production run.</td>
</tr>
<tr>
<td>716-10, Fabric Laminated Elastomeric Bridge Bearings</td>
<td>One (1) full size bearing per every five in each size category, per project, per production run, a minimum of three (3) bearings.</td>
</tr>
</tbody>
</table>
Examples of Steel Laminated and Fabric Laminated Bridge Bearings

Figure C
Steel Laminated Elastomeric Bridge Bearing

Figure D
Fabric Laminated Elastomeric Bridge Bearing
Completed Inspectors Worksheet (Examples 1 thru 4)

Steel Laminated Bearing

*BEDDING LAYERS

<table>
<thead>
<tr>
<th>Laminate</th>
<th>Side A</th>
<th>Side B</th>
<th>Side C</th>
<th>Side D</th>
<th>Working Thickness (Lowest of 4 sides)</th>
<th>Average of Four Sides</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11.5</td>
<td>14.0</td>
<td>14.0</td>
<td>15.0</td>
<td>11.5</td>
<td>13.6</td>
</tr>
<tr>
<td>2</td>
<td>12.0</td>
<td>12.5</td>
<td>12.0</td>
<td>14.5</td>
<td>12.0</td>
<td>11.8</td>
</tr>
<tr>
<td>3</td>
<td>12.5</td>
<td>12.5</td>
<td>13.5</td>
<td>15.0</td>
<td>12.5</td>
<td>13.4</td>
</tr>
<tr>
<td>4</td>
<td>13.5</td>
<td>11.5</td>
<td>12.0</td>
<td>14.0</td>
<td>11.5</td>
<td>12.8</td>
</tr>
</tbody>
</table>

47.5 mm TOTAL

(see NOTE 1) (see NOTE 2)

NOTE 1: This number exceeds 41.4mm (75% ERT). Therefore, this bearing has acceptable plate parallelism.

NOTE 2: Each of the average measurements are within the tolerance range of 11.0mm - 16.6mm. Therefore, this bearing has acceptable laminate thickness.
Steel Laminated Bearing

* BEDDING LAYERS

63.5mm
32mm
3.2mm

12 gauge shims = 0.3708 mm each

<table>
<thead>
<tr>
<th>Laminate</th>
<th>Side A</th>
<th>Side B</th>
<th>Side C</th>
<th>Side D</th>
<th>Working Thickness (Lowest of 4 sides)</th>
<th>Average of Four Sides</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9.0</td>
<td>12.0</td>
<td>15.0</td>
<td>12.5</td>
<td>9.0</td>
<td>12.1</td>
</tr>
<tr>
<td>2</td>
<td>13.0</td>
<td>12.0</td>
<td>11.5</td>
<td>12.5</td>
<td>11.5</td>
<td>12.2</td>
</tr>
<tr>
<td>3</td>
<td>11.5</td>
<td>11.5</td>
<td>12.5</td>
<td>12.0</td>
<td>11.5</td>
<td>11.9</td>
</tr>
<tr>
<td>4</td>
<td>8.5</td>
<td>10.5</td>
<td>13.0</td>
<td>12.5</td>
<td>8.5</td>
<td>11.1</td>
</tr>
</tbody>
</table>

TOTAL 40.5mm

(see NOTE 1) (see NOTE 2)

NOTE 1: The above number is less than 41.4mm (75% ERT). Therefore, this bearing has unacceptable plate parallelism. The inspector shall notify the Materials Bureau immediately requesting appropriate action.

NOTE 2: Each of the above recorded measurements are within the tolerance range of 11.0mm - 16.6mm. Therefore, this bearing has acceptable laminate thickness.
Fabric Laminated Bearing

![Diagram of fabric laminated bearing](image)

**Contract No.**: D250000  
**Shop Drawing No.**: US-243

ERT = \(50.8 \text{ mm}\)  
Laminate Thickness = \(\frac{ERT}{3} = 16.9 \text{ mm}\)

75% ERT = \(38.1 \text{ mm}\)  
Laminate Thickness \(\pm 20\% = 13.5 \text{ mm} - 20.3 \text{ mm}\)

**Measurements Nearest 0.5mm**

<table>
<thead>
<tr>
<th>Laminate</th>
<th>Side A</th>
<th>Side B</th>
<th>Side C</th>
<th>Side D</th>
<th>Working Thickness (Lowest of 4 sides)</th>
<th>Average of Four Sides</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16.0</td>
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</table>

48.5mm TOTAL  
(see NOTE 1)  
(see NOTE 2)

**NOTE 1**: The above number exceeds 38.1mm (75% ERT). Therefore, this bearing has acceptable fabric parallelism.

**NOTE 2**: Each of the above recorded measurements are within the tolerance range of 13.6mm - 20.4mm. Therefore, this bearing has acceptable laminate thickness.
Fabric Laminated Bearing

Contract No. D 250000
Shop Drawing No. US-243

ERT = 50.8mm
Laminate Thickness = ERT/3 = 16.9mm

75% ERT = 38.1mm
Laminate Thickness ± 20% = 13.5mm - 20.3mm

Measurements Nearest 0.5mm

<table>
<thead>
<tr>
<th>Laminate</th>
<th>Side A</th>
<th>Side B</th>
<th>Side C</th>
<th>Side D</th>
<th>Working Thickness (Lowest of 4 sides)</th>
<th>Average of Four Sides</th>
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</thead>
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<td>19.5</td>
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</table>

45.0mm TOTAL
(see NOTE 1) (see NOTE 2)

NOTE 1: The above number exceeds 38.1mm (75% ERT). Therefore, this bearing has acceptable fabric parallelism.

NOTE 2: 9.5mm is not within the tolerance range of 13.6mm - 20.4mm. The inspector shall notify the Materials Bureau immediately requesting appropriate action.
**Inspector's Worksheet**

Contract No. ___________ Lot No. ________
Shop Drawing No. ___________ Pad No. ________

ERT = ________ 75% ERT = ________
Laminate Thickness = ERT / ________
Laminate Thickness ± 20% = ________

**Measurements Nearest 0.5mm**

<table>
<thead>
<tr>
<th>Laminate</th>
<th>Side A</th>
<th>Side B</th>
<th>Side C</th>
<th>Side D</th>
<th>Working Thickness (Lowest of 4 sides)</th>
<th>Average of Four Sides</th>
</tr>
</thead>
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</table>
Examples of Completed BR240,
Sample And Acceptance Transmittal For
Plain and Steel Laminated Elastomeric Bridge Bearings

Figure B

Figure F
Examples of Completed BR240, Sample And Acceptance Transmittal For Sliding and Fabric Laminated Elastomeric Bridge Bearings

To: [Redacted]

Material represented by the sample described below was

On [Redacted] For [Redacted]

(Signature)

[Redacted]

Figure G

To: [Redacted]

Material represented by the sample described below was

On [Redacted] For [Redacted]

(Signature)

[Redacted]

Figure H
Example of Completed BR195, Shipment Authorization Form

**Figure I**
<table>
<thead>
<tr>
<th>REGION NUMBER</th>
<th>INCLUDING COUNTIES</th>
<th>ADDRESS</th>
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<tbody>
<tr>
<td>1</td>
<td>Albany Rochester</td>
<td>84 Holland Avenue Albany, NY 12208</td>
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<td></td>
<td>Warren Saratoga</td>
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</tr>
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<td>Greene Schenectady</td>
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<td>207 Genesee Street Utica, NY 13501</td>
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<td>Hamilton Montgomery</td>
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<td>Herkimer Oneida</td>
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<td>Onondaga Tompkins</td>
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<tr>
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<td>Wayne</td>
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<td>Allegany Steuben</td>
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<td>Chemung Tioga</td>
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<td>Schuyler Yates</td>
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<td>Allegany Steuben</td>
<td>OGS Hornell St. Office Bldg. 107 Broadway Hornell, NY 14843</td>
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<td>Clinton Lewis</td>
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<td>Franklin St. Lawrence</td>
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<td>Dutchess Rockland</td>
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<td>1 Hunters Point Plaza 47-40 21st Street Long Island City, NY 11101</td>
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<td></td>
<td>Kings Richmond</td>
<td></td>
</tr>
<tr>
<td></td>
<td>New York</td>
<td></td>
</tr>
</tbody>
</table>
INSTRUCTIONS FOR RANDOM NUMBER TABLE

1. Determine number of digits to be used that correspond with number of units to be sampled. (e.g., 500 units - use last three digits of each number in the table - 9685).

2. Starting anywhere in the table, select the units to be sampled by reading the numbers consecutively that do not exceed total number of units in the lot.

EXAMPLE: 500 units to be sampled with 5 samples needed. Presume you start on line 27, column 3 #685. Since 685 is larger than the number of units in lot, go down column 3 selecting numbers 64, 32, 187, 37, and 110. When counting units in lot, those units corresponding to these numbers would be sampled.