



**INDIANA DEPARTMENT OF TRANSPORTATION
DIVISION OF MATERIALS AND TESTS**

**VERIFYING SOIL COMPACTION RAMMERS
ITM No. 915-21**

1.0 SCOPE.

- 1.1** This test method covers the procedures for verifying the critical dimensions of the manually operated and mechanically operated rammers used in test methods AASHTO T 99, AASHTO T 180, and **ITM 512**.
- 1.2** This ITM may involve hazardous materials, operations, and equipment and may not address all of the safety problems associated with the use of the test method. The user of the ITM is responsible for establishing appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

2.0 REFERENCES.

2.1 AASHTO Standards.

M 231 Weighing Devices Used in the Testing of Materials

T 99 Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop

T 180 Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

2.2 ITM Standards.

512 Field Determination of Maximum Dry Density and Optimum Moisture Content of Soil

3.0 TERMINOLOGY. Definitions for terms and abbreviations shall be in accordance with the Department's Standard Specifications, Section 101.

4.0 SIGNIFICANCE AND USE. This ITM is used by laboratory personnel to verify the critical dimensions of soil manually and mechanically operated compaction rammers.

5.0 APPARATUS

5.1 Calipers, readable to 0.01 mm

5.2 Tape measure, readable to 1 mm

5.3 Balance, Class G5, capacity of 5 kg, in accordance with AASHTO M 231

6.0 PROCEDURE

6.1 Measure and record the diameter of the rammer face to the nearest 0.01 mm by taking two readings 90° apart using the calipers. Average the two readings.

6.2 Pull up the handle, measure, and record the drop height of the rammer. Determine this height to the nearest 1 mm inside the guide-sleeve using the tape measure.

6.3 Remove the rammer from the guide-sleeve. Determine and record the weight of the rammer with knob and fastener to the nearest 1 g.

6.4 Measure and record the number of vent holes, diameter of the vent holes to the nearest 0.1 mm, and the distance of the vent holes from each end of the guide sleeve.

7.0 TOLERANCES

	<u>AASHTO T 99 / ITM 512</u>	<u>AASHTO T 180</u>
Face Diameter	50.80 ± 0.25 mm	50.80 ± 0.25 mm
In-Service Face Diameter	50.42 mm minimum	50.42 mm minimum
Drop Height	305 ± 2 mm	457 mm ± 2 mm
Drop Weight	2.495 ± 0.009 kg	4.536 kg ± 0.009 kg
Number of Vent Holes	4 minimum	4 minimum
Distance of Vent Holes from each End	19 mm approx	19 mm approx

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SOIL COMPACTION RAMMER VERIFICATION

Equipment:

Calipers: _____

Balance: _____

Rammer ID					
Face Diameter					
Weight of Drop					
Height of Drop					
Vent Hole Diameter					
No. of Vent Holes – Top					
No. of Vent Holes - Bottom					
Diameter of Vent Holes					
Distance of Vent Hole from End					
Hole Location Correct? (Y/N)					

Do the measurements comply with the requirements of AASHTO T 99 / T 180 / **ITM 512**? (Y/N)

Remarks: _____

Verified by: _____

Date: _____

Next Date Due: _____