

GDT 31

A. Scope

For a complete list of GDTs, see the Table of Contents.

Use this test method to determine the length of a core drilled from a concrete structure, particularly from a concrete pavement.

B. Apparatus

The apparatus is a calipering device that measures the length of axial elements of the core (see [Figure 31-1](#)).

While the details of the mechanical design are not prescribed here, the apparatus must conform to the following requirements:

1. The apparatus must hold the specimen with its axis in a vertical position by three symmetrically placed supports bearing against the lower end. These supports must be short posts or studs of hardened steel, and the ends that bear against the surface of the specimen must be rounded to a radius of not less than 1/4 in (6 mm) and not more than 1/2 in (13 mm).
2. The apparatus must be able to accommodate specimens of different nominal lengths over a range of at least 4 to 10 in (100 to 250 mm).
3. The calipering apparatus must allow you to make a length measurement at the center of the upper end of the specimen and at eight additional points spaced at equal intervals along the circumference of a circle. The circle's center point coincides with that of the end area of the specimen and its radius is between 1/2 and 3/4 of the radius of the specimen.
4. Make sure the measuring rod or other device that makes contact with the end surface of the specimen for measurement is rounded to a radius of 1/8 in (3 mm). The scale used for the length readings must be marked with clear, definite, accurately spaced graduations of 0.05 in (1 mm).
5. The apparatus must be stable and sufficiently rigid to maintain its shape and alignment without a distortion or deflection of more than 0.01 in (0.25 mm) during all normal measuring operations.

C. Sample Size and Preparation

1. Use cores that represent the concrete in the structure from which they are removed.
2. Drill the core with the axis normal to the surface of the structure.
3. Ensure the ends are free from all conditions not typical of the surfaces of the structure.
4. Do not use cores that have abnormal defects or that are damaged significantly in the drilling operation.

D. Procedures

1. Before measuring the core length, calibrate the apparatus with the appropriate gauges to clearly define any errors caused by mechanical imperfections in the apparatus.
When these errors exceed 0.01 in (0.25 mm), apply corrections to the core length measurements.
2. Place the specimen in the measuring apparatus with the smooth end of the core down against the three hardened-steel supports. The smooth end is the end that represents the upper surface of a pavement slab or a formed surface in the case of other structures.
Place the specimen on the supports so the central measuring position of the measuring apparatus is directly over the mid-point of the upper end of the specimen.
3. Make 9 measurements of the length on each specimen, one at the central position and one each at eight additional positions spaced at equal intervals along the circumference.
 - a. Measure along the circle of measurements described in Apparatus.3.
 - b. Read each measurement to 0.05 in (1 mm).

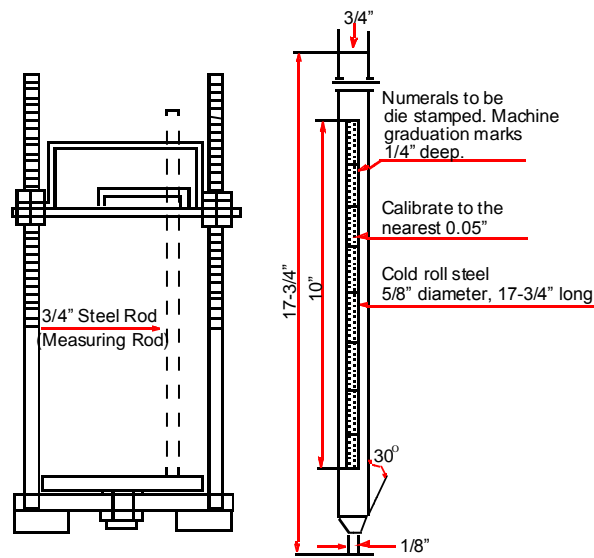
NOTE: If you discover during measuring that the surface at one or more of the measuring points is not representative of the general plane of the core end because of a small projection or depression, rotate the specimen slightly about its axis and take a complete set of nine measurements in the new position.

E. Calculations

No calculations are required for this test.

F. Report

1. Record each observation to the nearest 0.05 in (1 mm).
2. Average the nine measurements expressed to the nearest 0.10 in (1 mm) and report this as the length of the concrete core on Form 319.



Core Measuring Stand and Rod

Figure 31-1