



Designation: D6032/D6032M – 17

Standard Test Method for Determining Rock Quality Designation (RQD) of Rock Core¹

This standard is issued under the fixed designation D6032/D6032M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This test method covers the determination of the rock quality designation (RQD) as a standard parameter in drill core logging of a core sample in addition to the commonly obtained core recovery value (Practice D2113); however there may be some variations between different disciplines, such as mining and civil projects.

1.2 This standard does not cover any RQD determinations made by other borehole methods (such as acoustic or optical televiewer) and which may not give the same data or results as on the actual core sample(s).

1.3 There are many drilling and lithologic variations that could affect the RQD results. This standard provides examples of many common and some unusual situations that the user of this standard needs to understand to use this standard and cannot expect it to be all inclusive for all drilling and logging scenarios. The intent is to provide a baseline of examples for the user to take ownership and watch for similar, additional or unique geological and procedural issues in their specific drilling programs.

1.4 This standard uses the original calculation methods by D.U. Deere to determine an RQD value and does not cover other calculation or analysis methods; such as Monte Carlo.

1.5 The RQD in this test method only denotes the percentage of intact and sound rock in a core interval, defined by the test program, and only of the rock mass in the direction of the drill hole axis, at a specific location. A core interval is typically a core run but can be a lithological unit or any other interval of core sample relevant to the project.

1.6 RQD was originally introduced for use with conventional drilling of N-size core with diameter of 54.7 mm (2.155 in.). However, this test method covers all types of core barrels and core sizes from BQ to PQ, which are normally acceptable for measuring determining RQD as long as proper drilling

techniques are used that do not cause excess core breakage or poor recovery, or both. See 6.3 for more information on this issue.

1.7 Only the RQD classification which correlates with the common tunneling classification that was presented by Deere^{2,3} is covered in this test method. Other classification systems are not covered specifically but are mentioned in general and if used shall not be regarded as nonconformance with this standard.

1.8 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice D6026.

1.8.1 The method used to specify how data are collected, calculated, or recorded in this standard is not directly related to the accuracy to which the data can be applied in design or other uses, or both. How one applies the results obtained using this standard is beyond its scope.

1.9 The values stated in either SI units or inch-pound units [rational values are given in brackets] are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard. Reporting of test results in units other than SI shall not be regarded as nonconformance with this standard.

1.10 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.11 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the*

¹ This test method is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.12 on Rock Mechanics.

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² Deere, D. U., and Deere, D. W., The Rock Quality Designation (RQD) After Twenty Years, *Rock Classification Systems for Engineering Purposes*, ASTM STP 984, 1988, pp. 91–101.

³ Deere, D. U., and Deere, D. W., Rock Quality Designation (RQD) Index in Practice, *Contract Report G1–89–1*, Department of the Army Corps of Engineers, 1989.

*A Summary of Changes section appears at the end of this standard