



Minnesota Department of Transportation  
High Performance Dowel Bar Approval Procedure  
February 2, 2018

The Minnesota Department of Transportation (MnDOT) will only accept High Performance Dowel Bars from the MnDOT Approved/Qualified Products List.

A. Testing

The following test results from an Independent Testing Laboratory may be required depending on the different combinations of materials and coatings of the dowel bar. Contact MnDOT to determine which tests are required for approval.

1. Differential Deflection (DD) using an accelerated loading frame which repeatedly applies approximately 10 million load cycles of simulated heavy vehicle loads (9000-lb single wheel passage).
2. AASHTO T 253-02 (2011), "Standard Method of Test for Coated Dowel Bars".
  - a. Pullout Test Procedure
  - b. Corrosion-Abrasion Test Procedure
  - c. Chemical Resistance Test Procedure
  - d. Cathodic Disbonding Test Procedure
  - e. Coating Impact Resistance Test Procedure (non-metallic surfaces only)

B. Qualification Requirements

Test	Requirements
Differential Deflection (DD)	≤ 10 mils with a flat DD trend after 10M load cycles
Pullout Load	AASHTO T 254-06 (2015), Section 6.5.2.
Abrasion	AASHTO T 254-06 (2015), Section 6.5.3.
Corrosion	AASHTO T 254-06 (2015), Section 6.5.4.
Chemical Resistance	AASHTO T 254-06 (2015), Section 6.5.5.
Cathodic Disbonding	AASHTO T 254-06 (2015), Section 6.5.6.
Coating Impact Resistance	AASHTO T 254-06 (2015), Section 6.5.8.

C. Reference Materials

Manufacturer shall submit a material sample for approval to the MnDOT Materials Lab. Also include a Certificate of Compliance certifying that all materials used in fabrication of the dowel bars comply with all applicable specifications.

D. Material

Federal aid projects require that the regulation, U.S. Code of Federal Regulations 23CFR635.410, the “Buy American Steel Regulation”, be followed. This is outlined in Special Provision 1601, “Source of Supply and Quality”.

E. Non-Compliance

If future samples of these materials do not meet MnDOT specifications, the product may be removed from the approved product list.

Please also note that it is the manufacturer’s responsibility to immediately notify MnDOT if the product is changed or modified, or if the product is no longer being produced.

The list of approved products may be found on the MnDOT Concrete website at <http://www.dot.state.mn.us/products/concrete/highperformancedowelbar.html>

Reference samples, test data, and certification shall be sent to:

MnDOT Office of Materials and Road Research  
Attention: Robert Golish ([robert.golish@state.mn.us](mailto:robert.golish@state.mn.us))  
1400 Gervais Ave.  
Maplewood MN 55109