
Standard Method of Test for Passing Ability of Self-Consolidating Concrete (SCC) by J-Ring

AASHTO Designation: TP 74-09¹



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1. SCOPE

- 1.1. This test method covers determination of the passing ability (Note 1) of self-consolidating concrete (SCC) by the J-Ring method, both in the laboratory and in the field. SCC is defined as a highly workable concrete that can flow through densely reinforced or complex structural elements under its own weight without vibration and adequately fill voids without experiencing segregation or excessive bleeding.

Note 1—Passing ability is defined as the ability of SCC to flow through openings such as the spaces between reinforcing bars without segregation or without aggregate blocking. Blocking is defined as the condition in which pieces of coarse aggregate combine to form elements large enough to obstruct the flow of the SCC between reinforcing bars or other obstructions in the concrete formwork.

- 1.2. The values stated in either SI units or inch-pound units are to be regarded separately as standard. Within the text, the inch-pound units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

- 1.3. *This standard does not purport to address all of the safety concerns 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.*

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- T 119M/T 119, Slump of Hydraulic Cement Concrete
 - T 141, Sampling Freshly Mixed Concrete
 - TP 73, Slump Flow of Self-Consolidating Concrete (SCC)

3. SUMMARY OF TEST METHOD

- 3.1. The J-Ring apparatus consists of a rigid ring connecting 4-in. vertical smooth bars. The ring is held to a base plate, and an inverted slump cone is placed in its center. A sample of freshly mixed SCC is allowed to flow from the inverted slump cone through the bars of the J-Ring apparatus. The final average diameter of the slump flow patty after flowing through the bars compared to the average slump flow measured without the J-Ring is a measure of the passing ability of the SCC, and the difference in height of the SCC inside and outside of the ring provides an indication of blocking.

4. SIGNIFICANCE AND USE

- 4.1. This test method is applicable to SCC, defined in Section 1.1.