

## **1 A simple test method for assessing the workability of self-compacting concrete - flow cone**

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Self compacting concrete (SCC) has great potential not only for rationalizing the production of precast concrete elements as well as construction work on site. Very great care during production and quality assurance is essential if these advantages are to be utilized. The concreting process is simplified when compared with conventional vibrated concrete, but against this has to be set an increased amount of testing. In order to assess the workability of SCC the DAfStb guideline "Self compacting concrete" requires the slump flow and the V-funnel flow time. Determination of the V-funnel flow time for SCC used as ready-mixed concrete as acceptance test causes particular problems on construction sites as this flow test and the time-consuming cleaning of the funnel can interfere with the placement process.

During an AiF-supported research project a piece of test equipment, the so-called "flow cone", was developed in order to simplify the amount of testing when SCC is delivered as ready-mixed concrete. That is suitable for site conditions, with which the two decisive test values – slump flow and V-funnel flow time – for describing the required fresh concrete properties of an SCC can be determined reliably in a single test. The flow cone is a normal commercial slump cone mounted on an appropriate supporting stand and closed off at the bottom by a slide. A flow nozzle with an outlet diameter of 63.5 mm exhibiting the same slope of the slump cone was attached to the underside of the support. After the SCC was poured into the flow cone and the slide was removed the time was measured the SCC needed to flow out of the flow cone. With the SCC investigated here the same flow times were measured as those obtained using the V-funnel with low-viscosity and higher-viscosity SCC, respectively. The slump flow measured at the same time was not affected by the tapered shape when compared with the conventional slump cone test. The flow cone therefore represents an alternative way of determining the viscosity of SCC that can be used particularly advantageously for acceptance testing on site.