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International Standard



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**Paper and board — Determination of capillary rise —  
Klemm method**

*Papier et carton — Détermination de l'ascension capillaire — Méthode de Klemm*

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## Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8787 was prepared by Technical Committee ISO/TC 6, *Paper, board and pulps*.

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# Paper and board — Determination of capillary rise — Klemm method

## 1 Scope and field of application

This International Standard specifies the procedure for determining the capillary rise of paper and board by the Klemm method. It is intended for unsized papers such as blotting papers and other papers having a relatively high water absorbency.

The method is not recommended for materials having a capillary rise of less than 5 mm, for which other tests such as in ISO 535, *Paper and board — Determination of water absorption — Cobb method*, may be more suitable.

## 2 References

ISO 186, *Paper and board — Sampling to determine average quality*.

ISO 187, *Paper and board — Conditioning of samples*.

ISO 3696, *Water for laboratory use — Specifications and test methods*.<sup>1)</sup>

ISO 5725, *Precision of test methods — Determination of repeatability and reproducibility by inter-laboratory tests*.

## 3 Principle

A strip of the material to be tested is suspended vertically with its lower end immersed in water. The capillary rise in 10 min is measured.

The test is carried out in a standard conditioned atmosphere in an open vessel and the measurement of capillary rise is made by means of a cathetometer or by a scale.

## 4 Test liquid

**Distilled water** to ISO 3696, grade 3, or **deionized or drinking water**, if the results obtained can be shown to be comparable with results obtained using distilled water.

## 5 Apparatus

**5.1 Water pan**, of sufficient depth to permit the immersion of the lower end of the test piece to the required depth.

**5.2 Device which permits the test pieces to be vertically suspended** and to be lowered into water to a depth of 10 to 15 mm.

**5.3 Device to determine the capillary rise** in relation to a datum point at the water surface. This may be a cathetometer or scales attached to the apparatus or separate from it.

NOTE — The use of a cathetometer will improve the accuracy and simplify reading the length of the capillary rise.

**5.4 Timer with alarm**, capable of indicating time up to 11 min to the nearest second.

**5.5 Clips**, such as metal paper clips, each of sufficient weight to ensure immersion of the end of the test piece.

**5.6 Pencil**, preferably a copy pencil of the indelible type.

## 6 Sampling and preparation of test pieces

Sample in accordance with ISO 186 and condition the samples in accordance with ISO 187.

Cut 10 strips at least 200 mm long and  $15 \pm 1$  mm wide from the sample in the machine direction and/or cross machine direction.

NOTE — Where a test piece length of 200 mm cannot be obtained, the greatest length possible should be taken and attached to an inert carrier by means of a staple.

Draw a line with the pencil (5.6) across each test piece perpendicular to the long dimension at a distance of 15 mm from one end. A clip (5.5) or other weight may be fixed between the line and that end to ensure immersion.

1) At present at the stage of draft.