

# International Standard



# 3762

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

## Paper — Preparation of a letterpress print for test purposes

*Papier — Préparation d'impressions typographiques en vue d'essais ultérieurs*

First edition — 1979-11-15

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To be withdrawn

UDC 676.017.72 : 655.3

Ref. No. ISO 3762-1979 (E)

Descriptors : papers, tests, printing tests, test specimens, typography.

## Foreword

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International Standard ISO 3762 was developed by Technical Committee ISO/TC 6, *Paper, board and pulps*, and was circulated to the member bodies in September 1978.

It has been approved by the member bodies of the following countries:

Austria	Ireland	South Africa, Rep. of
Belgium	Israel	Spain
Brazil	Italy	Sweden
Czechoslovakia	Kenya	Switzerland
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India	Poland	
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The member bodies of the following countries expressed disapproval of the document on technical grounds:

Canada  
France

# Paper — Preparation of a letterpress print for test purposes

## 0 Introduction

Several printing presses make it possible to carry out tests on paper to assess its suitability for particular purposes.

This International Standard gives details of a procedure for preparing reproducible prints by the letterpress process that can be used for subsequent tests which will be dealt with in later publications. It should be recognized that this procedure relates to the preparation of prints in laboratories with various presses that differ considerably in their geometrical and mechanical characteristics. It is emphasized that the nature of the various printing presses is such that for interlaboratory work exactly comparable results may not necessarily be obtained, but the ranking of the prints will usually be consistent.

## 1 Scope

This International Standard specifies a method of preparing a letterpress print in a laboratory for the purpose of testing paper, irrespective of the press used to prepare the print.

## 2 Field of application

Prints prepared by the procedure described in this International Standard are intended for use in carrying out certain tests for printing properties of paper.

## 3 References

ISO 186, *Paper and board — Sampling for testing.*

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

## 4 Definitions

**4.1 forme** : The cylinder, sector or plate from which the printing is to be carried out.

**4.2 impression pressure** : The pressure (force per unit area) exerted between the paper and the forme in printing.

**4.3 impression linear pressure** : The force per unit length exerted between the paper and the forme in printing.

**4.4 printing speed applied to a cylinder press** : The speed of the paper passing through the impression nip.

**4.5 dwell time applied to a platen press** : The period of time during which the inked portion of the forme and paper are in contact.

**4.6 ink quantity on forme** : The mass of ink per unit printing surface area of the forme.

**4.7 ink quantity on paper** : The mass of ink per unit printed area of the paper.

## 5 Principle

The method consists in :

- 1) making a test print by the use of a letterpress press by :
  - depositing, under reproducible conditions, a known quantity of ink on to a printing forme;
  - transferring, under reproducible conditions, a film of ink on to a paper;

NOTE — This applies equally whether the ink is transferred from a cylindrical forme to a flat sheet of paper, whether the ink is transferred from a flat forme to a sheet of paper on a cylindrical drum, or whether the ink is transferred from a cylindrical forme or sector to a sheet of paper on a cylindrical drum or by a platen press.

- 2) measuring the mass of the ink on the forme before and after printing.

## 6 Equipment

### 6.1 Printing apparatus

The equipment used shall be capable of operating at reproducible printing speed or dwell time and reproducible impression pressure. The inking rollers shall be of such materials that they do not interact adversely with the ink either physically or chemically.

The forme shall have a smooth surface. As it has to be weighed, it shall be detachable and light, so that the quantity of ink on it can be accurately and quickly weighed. It shall not react

adversely physically or chemically with the printing ink. It shall be capable of transferring a solid tone of known area of adequate size for any measurements to be made in subsequent tests.

**6.2 Ink-measuring device** : a balance sufficiently sensitive to provide an accuracy within a limit of  $\pm 0,1$  mg.

## 7 Test ink

An ink shall be selected which is best suited to achieve the objective of the proposed subsequent test.

NOTE — For any interlaboratory comparisons of paper, it is essential to use identical ink that has been stored at the same temperature in fully filled and sealed containers.

## 8 Sampling

Sample in accordance with ISO 186.

## 9 Conditioning

Condition the sample in accordance with ISO 187, unless otherwise agreed.

## 10 Preparation of test pieces

From the sample, cut test pieces in either the machine direction or the cross direction, according to the needs of the subsequent tests. Cut all test pieces for a particular test in the same direction and mark them accordingly.

Cut test pieces to dimensions sufficient to allow full printing from the chosen printing forme, plus any additional area that may be required for subsequent tests.

The test pieces shall be free from specks, wrinkles or surface faults. The area to be tested shall not be touched by hand.

## 11 Procedure

### 11.1 Test atmosphere

Make the test prints in the atmosphere in which the test pieces have been conditioned (see clause 9).

### 11.2 Printing and measuring

According to the needs of the subsequent tests, make the test prints on a particular side of the paper, for example the top side or wire side, having first marked the relevant side(s). If it is desired to test one side of the sheet only, record the identity of this side.

Then proceed as follows :

**11.2.1** Weigh the printing forme with the necessary accuracy.

**11.2.2** By any suitable method, distribute over the forme a continuous ink film of known or measurable quantity and of uniform thickness.

NOTE — The use of an ink pipette to dispense a volume to an accuracy of  $\pm 0,01$  ml may be convenient.

**11.2.3** Weigh the inked printing forme to the same accuracy as above.

**11.2.4** Carry out, under known impression pressure and printing speed or dwell time, the transfer of ink from the printing forme to the test piece, without appreciable slippage.

**11.2.5** Weigh the forme a third time with the remaining ink.

NOTE — There are some characteristics of prints that can be judged only visually; prints made by this method can be useful for such visual assessment.

## 11.3 Cleaning

Clean the ink rollers and forme using suitable solvents which will not adversely affect them. Take care to remove traces of solvent before making replicate tests.

## 12 Report

In order to facilitate the preparation of reports on any subsequent tests, a report shall accompany the test prints indicating :

- a) temperature and relative humidity conditions used;
- b) details of the printing apparatus :
  - 1) trade mark and kind of the printing press;
  - 2) nature and quality of printing forme and packing (including size of printing area);
  - 3) printing speed, in metres per second, or dwell time, in seconds;
  - 4) impression pressure or impression linear pressure, as appropriate;
- c) details of the paper sample :
  - 1) description;
  - 2) side tested (top side or wire side);
  - 3) direction of printing, relative to direction of paper (machine direction or cross direction);
  - 4) number of test pieces;
- d) details of the test ink :
  - 1) description (including batch number, age, storage