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LABORATORY BÖBLINGEN

Title: STIFFNESS

1.0 INTRODUCTION1.1 SCOPE

- 1.1.1 This document establishes the method for determining stiffness of 7 and 9 Point Cardstock.

1.2 REFERENCES1.2.1 Specifications

IBM 894502	Data Processing, Cardstock, 7 Point
IBM 894507	Data Processing, Cardstock, 9 Point

1.2.2 Standards

TAPPI T402	Conditioning Paper and Paperboard for Testing
TAPPI T489	Stiffness of Paperboard Paper

1.3 AUTHORIZATION

- 1.3.1 This document is authorized by the Manager of Quality Assurance Consumables.

1.4 TEST EQUIPMENT/MATERIALS

- 1.4.1 Taber V-5 Model 150-1 Motor Driven Stiffness Tester manufactured by the Taber Instrument Corporation, North Tonawanda, New York. The scale on the dial of the tester is graduated in gram centimeters. (Figure I)
- 1.4.2 The Taber Triple - Cut Blanking Shear is used to prepare specimen to a specific size for testing. Refer to drawing. (Figure I)

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## 1.5 CALIBRATION

- 1.5.1 Set the Loading Dial to zero by moving the electrical switch lever to the left or right position.
- 1.5.2 Adjust legs of tripod stand by means of the tripod adjustable tips. When properly adjusted, the pendulum indicator will register zero on the scale.

## 2.0 PROCEDURE

### 2.1 SAMPLE PREPARATION

- 2.1.1 Samples for test are cut to a uniform size (1 1/2" x 2 3/4") with the taber triple cut blanking shear. Three cards may be cut at one time.
- 2.1.2 Cut three (3) machine direction and three (3) cross machine direction samples from each of the three cards.
- 2.1.2.1 All specimens shall be free of foreign matter and creases.
- 2.1.3 Environment for conditioning and testing specimen(s) shall be in accordance with TAPPI T402-OS-49.

## 3.0 TEST INSTRUCTIONS

### NOTE

Refer to applicable specification (Ref. 1.2.1) for limits or range requirements.

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- 3.1 Insert test strip between the jaws of the clamp positioned so that the lower end of the strip rests lightly on the bottom gauge. Be sure test strip is parallel with the face of the pendulum while tightening the clamp screws.
- 3.2 Center the test strip between the rollers by moving the left hand roller toward the test strip until it makes contact but does not deflect the test strip enough to cause the pendulum to move.
- 3.3 Bring the right hand roller into light contact with the test strip.
- 3.4 On the head of each of the adjustment knobs is a black line. Observe the position of this line on the right hand adjustment knob. Then back the right hand roller off by turning the adjustment knob 1/4 turn in the machine direction. This procedure should always be followed when inserting specimen with thicknesses to insure that the clearance between the rollers and test strip is held constant.
- 3.5 Stiffness measurements are made by pushing the operating switch to one side which starts the motor running the driving disc and deflects the specimen against the resistance of the pendulum weight.
- 3.6 The stiffness reading is taken by stopping the driving disc when the center line on the pendulum is aligned with the 15° mark on the driving disc which points to the stiffness value on the scale. The test strip is deflected both to the right and left, and the average reading taken as the stiffness result.
- 3.7 Repeat above procedure to obtain the stiffness in the opposite direction.
- 3.8 Machine Direction and Cross Machine Direction are tested separately.

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4.0 REPORTING

- 4.1 The results of all tests of the three specimens of a sample shall be averaged for each principal direction of the paper. Average stiffness shall be recorded to the nearest 0.1 Stiffness units. Normal results would be recorded as 25.4; 9.1, etc.

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Approved by:

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Date

Revision

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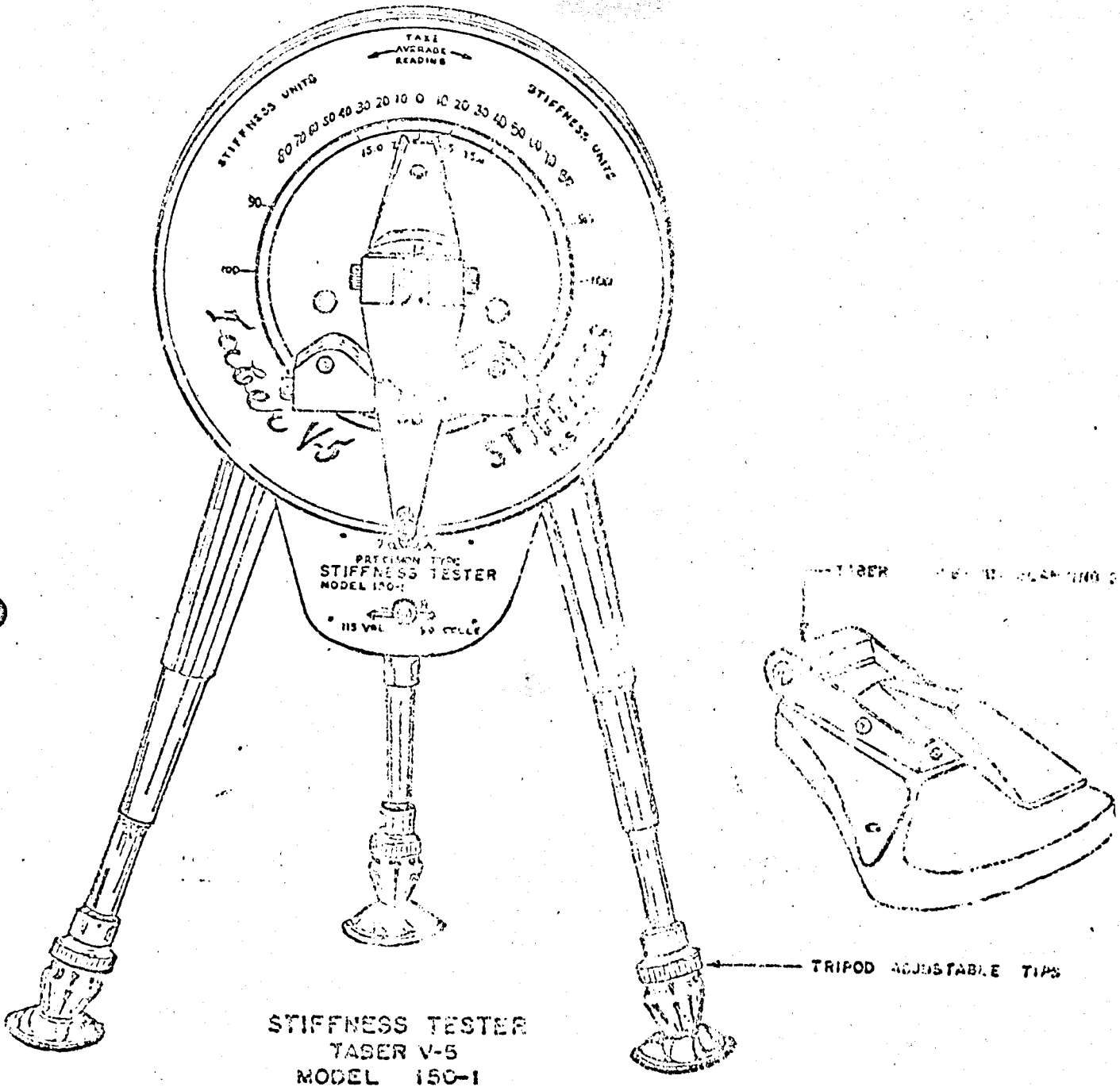


FIGURE 1