



# Standard Test Method for Determining Winding Torque and Tension of Typewriter Ribbons<sup>1</sup>

This standard is issued under the fixed designation F1050/F1050M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

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<sup>ε1</sup> NOTE—Units information was editorially revised in December 2010.

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## 1. Scope

1.1 This test method covers the determination of film ribbon cartridge wind tension and torque. The instruments described in this procedure may be used for specification acceptance, manufacturing control, product development, or research applications, or combination thereof.

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

1.3 *This standard does not purport to address all of the safety concerns, if any, 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. Summary of Test Method

2.1 This test method is intended to determine the dynamic cartridge tension and torque under controlled conditions. The test equipment and test procedures are intended to simulate cartridge tensions and torque under actual end-use conditions. Although specific manufacturers have been identified for this equipment, any torque and tension measurement equipment with equivalent signal output capabilities would be suitable.

2.2 To determine the mean cartridge tension and torque, a cartridge is put on a calibrated test fixture with the ribbon looped around the center wheel of a tension head and the ribbon being driven by a variable speed motor.

2.3 The tension head allows cartridge tension to be read in grams-force and torque in ounce-force inches.

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<sup>1</sup> This test method is under the jurisdiction of ASTM Committee F05 on Business Imaging Products and is the direct responsibility of Subcommittee F05.02 on Inked Transfer Imaging Products.

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## 3. Significance and Use

3.1 This test method enables tension and torque comparisons between cartridges and facilitates process control.

## 4. Interferences

4.1 Wide variations in environmental conditions (temperature and relative humidity) could affect the cartridge wind tension with this test procedure.

4.2 Tension range requirements vary with cartridge tension techniques. For example, ratchet and paw ranges from 10 to 60 g, foam from 60 to 150 g, and wrap spring from 30 to 80 g.

## 5. Apparatus and Materials

5.1 *Tension Heads*, 100 and 200-g.<sup>2</sup>

5.2 *Test Fixture Platform*, consisting of original equipment manufacturer ribbon deck, a freely turning wheel attached to the ribbon supply side of the platform, and variable speed drive motor.

5.3 *Calibration Weights*, of 20 g and 50 g.

5.4 *Digital Applicator*.<sup>2</sup>

5.5 *Recorder*.<sup>2,3</sup>

5.6 *Speed Controller*.<sup>4</sup>

5.7 *Torque Measurement Drive Motor*.

## 6. Test Specimen

6.1 The test specimen shall be an entire ribbon cartridge that has not been disrupted since it was assembled.

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<sup>2</sup> The sole source of supply of the test equipment components known to the committee at this time is Tensitron Corp., 733 South Bowen Street, Longmont, CO 80501. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,<sup>1</sup> which you may attend.

<sup>3</sup> The sole source of supply of the Tensitron G-C400 Recorder known to the committee at this time is Tensitron Corp., 733 South Bowen Street, Longmont, CO 80501.

<sup>4</sup> The sole source of supply of the Minarick SL-15-1 Speed Controller known to the committee at this time is Minarick Corporation, 905 East Thompson Ave., Glendale, CA 91201.