Taber Multi-Finger Scratch/Mar Tester

TB2100

INTRODUCTION

The design of Taber's Multi-Finger Scratch / Mar Tester is based on the apparatus described in automotive specifications (including Ford BN 108-13; General Motors GMN3943; Daimler-Chrysler LP-463DD-18-01 & PF-10938; and Nissan NEW M0159 Supplement U01-1), which is commonly referred to as a five-finger (five-arm) scratch & mar tester.

The instrument includes a pneumatically driven, moveable sledge to which the test sample is mounted. The sledge moves in a linear fashion, and is operated by a control knob for one or multiple pass testing. An electronic timer displays the rate of speed, which can be controlled by reducing or increasing air pressure.

A gantry supports five independent splined-fingers, which provide a constant, vertical load on interchangeable scratch pins (1.0mm or 7.0mm diameter hemisphere). The gantry system includes a handle to raise and lower the arms. In addition, five support rests are incorporated to allow one or more arms to be moved to an upright, rest position such that the arm does not contact the specimen during testing.

Individual weights of varying loads mount to the top of each arm finger to exert a standard force on the surface of the test material. Each instrument includes a weight set of 2N, 3N, 4N, 5N, 6N, 7N, 10N, 15N and 20N loads. Other weights are available for 8N, 13N, 18N and 25N. Using the precision weight kit, a load of 0.6N can be obtained.

Although flat specimens up to 22mm thick are normally tested, the 'free-floating' arms fingers enable you test evaluate slightly contoured specimens provided they are rigid or adequately supported. A spring-loaded specimen holder is standard and can be mounted to the end or side of the moveable sledge for greater flexibility. To mount contoured specimens, an optional set of 'moveable' hold-down clamps is available.

In addition to the standard 1.0mm or 7.0mm diameter hemisphere tips, an optional conical diamond tool holder is available. This permits testing with a 90° 3mil or 3.5mil radius point diamond tool. A 'scuffing kit' is also available.

APPLICATIONS

The 'five-finger' scratch tester has been popular in the automotive industry for testing smooth or grained plastics commonly used in ornamentation or trim. Useful for quality control as well as material or product development, the Multi-Finger Scratch / Mar Tester is ideal for evaluating plastics, rigid organic materials, paints and coatings, soft metals, linoleum, plus many others.

FEATURES

- Pneumatically driven, moveable platform
- Control knob operation
- Five independent spline-shaft fingers with support rest
- 9-piece weight set (2N, 3N, 4.5N, 5N, 6N, 7N, 10N, 15N, 20N)
- "Gripping" spring clamp specimen hold-down
- Replaceable specimen platform protective guard
- Electronic timer accurate to 1/100 second
- Air regulator control with built-in lubricator

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STANDARDS

Test procedures for the TABER® Scratch / Mar Tester (also known as Five (5) Finger Scratch Tester) have been established by a number of organizations. The following is a partial listing.

Chrysler	LP-463DD-18-01	Determination of Scratch and Mar Resistance of Automotive Plastics
Chrysler	PF-10938	Scratch and Mar - Resistance of Molded-In-Color Plastic Components
Ford	BN 108-13	Resistance to Scratching
Ford	BO-162-01	Resistance to Scratch and Mar
General Motors	GMN 3943	Scratch and Mar Resistance of Plastics, Five Arm Test
General Motors	GMW 14698	Scratch Resistance of Organic Coatings and Self-Adhesive Foils
Nissan	NES M0159	Testing Method of the Scratch Resistance of Interior Polypropylene Resin Parts

INCLUDED ACCESSORIES

Spline Shaft Finger Assembly (5 each)
Scratch Tip, 1.0 mm Diameter Hemisphere (5 each)
Mar Tip, 7.0 mm Diameter Hemisphere (5 each)
9-Piece Weight Set
Electronic Timer with Digital Display
Adjustable Specimen Clamp (set of 2)
Quick Disconnect Socket for Air Supply
Hex Wrench

INTERCHANGEABLE TOOLS

1.0 mm Tungsten Carbide Ball Scratch Tip
7.0 mm Tungsten Carbide Ball Mar Tip
Conical Scratch Tips (sold separately)
Diamond Tool Holder (sold separately)

ACCESSORY WEIGHT OPTIONS

Precision weight kit (to obtain 0.6N)
Weight set (includes 8N, 13N, 18N)
Weight, 25N

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