

TABER MULTI FINGER SCRATCH/MAR TESTER

/TB2100

DATASHEET

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 to 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

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

SPECIAL CARE

- Though robust in design, this instrument is precision-machined. Never drop it or knock it over
- Always clean the instrument after use.
- Clean the instrument using a soft dry cloth. Never clean the instrument by any mechanical means such as a wire brush or abrasive paper. This may cause, just like the use of aggressive cleaning agents, permanent damage.
- Do not use compressed air to clean the instrument.
- Always keep the instrument in its case when not in use.
- We recommend annual calibration

SAFETY PRECAUTIONS

- Not suitable to be put in the sun or in the high light
- Avoid using it in over-high or over-low temperature environment
- Avoid humidity
- Always make sure the instrument is connected to an earthed electric socket.
- Always make sure the instrument's power is turned off while adjusting any electric component
- A knife is a sharp object. Be careful when using it.

DISCLAIMER

The right of technical modifications is reserved.

The information given in this sheet is not intended to be exhaustive and any person using the product for any purpose other than that specifically recommended in this sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at his own risk. Whilst we endeavour to ensure that all advice we give about the product (whether in this sheet or otherwise) is correct we have no control over either the quality or condition of the product or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability whatsoever or howsoever arising for the performance of the product or for any loss or damage (other than death or personal injury resulting from our negligence) arising out of the use of the product. The information contained in this sheet is liable to modification from time to time in the light of experience and our policy of continuous product development.