

## Micro Indentation and Scratch Tester, MTR3

Microtest Indentation and Scratch tester is a high precision, instrumented testing equipment used for characterizing the mechanical properties of thin films, coatings and substrates among the others.

During indentation testing, an indenter (Vickers, Rockwell, Berkovich, etc.) normal to the sample surface is penetrated into the sample by applying an increasing load up to a preset value. The load is then gradually decreased until partial or complete relaxation of the sample occurs. The depth-versus-load curve obtained through indentation can be used to calculate the hardness and elastic modulus of almost any type of soft, hard, brittle or ductile material.

During scratch testing, a sharp tip (commonly diamond or WC) normal to the sample surface is drawn across a selected area under constant, incremental or progressive load.

Scratch testing is generally carried out to characterize the scratch resistance and surface mechanical properties (adhesion, fracture and deformation) of thin films/coatings and substrates.

A built-in optical microscope is used to precisely determine the points to be indented and the areas to be scratched. Besides, this microscope can be used for post indentation/scratch characterizations



## Abrasion Wear Tester (MTDA)

Microtest Abrasion Wear tester has specifically been designed to perform abrasion tests in accordance with ASTM G65 (standard test method for measuring abrasion using the dry sand/rubber wheel apparatus), ASTM G105 (standard test method for conducting wet sand/rubber wheel abrasion tests) and ASTM B611 (standard test method for determining the high stress abrasion resistance of hard materials).