SURFACE PROPERTY ANALYZERS

Kett

SCIENCE OF SENSING

Heidon Tribogear

Kett

Tomorrow's Testing, Today !

1-800-438-5388

Surface Property Testers

Why Measure Surface Properties?

The durability and acceptability of a product can be determined by measuring the various physical properties that it maintains, as well as the interface between the test component and the other components it will contact during use. Standardization of these parameters will result in reduced wear, extended life, and improved customer value. Minute variations in these relationships can result in extreme performance differences. Therefore, it is crucial to have accurate readings during development and when performing inspections and examinations, to maintain, adjust, and ensure quality.

Heidon Surface Property Testers were developed to achieve accurate measurements of these subtle, yet important values. As a pioneer in the field of Surface Analyzers, Kett has developed a variety of models for different materials, applications, and purposes. Our products help customers maintain optimal specifications and standards.

Why Measure Product Characteristics

Manufacturing is rapidly advancing to provide better, more stable products. In this environment, measurements are becoming more important in maintaining quality, reducing labor, and ensuring consistency.

Measurements turn subjective judgments into objective facts. Measuring a part makes it possible to judge the direction of future trends. A wide variety of Kett products are available to provide strong support for modern business.

Why Use Kett

Fifty years of innovative design in measurement devices has made Kett products leaders in our fields. Simple operation, quality construction, and ergonomic design, combined with a wide array of features, make Kett Surface Property Testers the best value for your investment. After all, it is not only your product quality at stake...the Kett line will be a vital asset of your company's reputation!

14DR - Multi-Purpose Analyzer

The Ultimate in Versatility

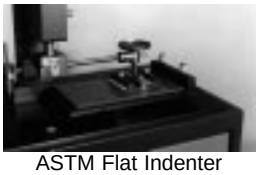
Designed to provide immediate, accurate readings of many types of property measurements, this system is simple to use and provides the capability to handle most analyses from a single unit - minimizing lab space requirements and providing a consistent interface for measurements and data collection.

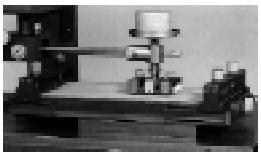
Principle of Operation

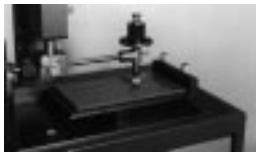
A test piece is loaded on the mobile base plate. The appropriate fixture (jig) is attached to the horizontal arm, and the load is balanced to zero. Up to 1000 grams are added to the weight pan. The DC servo motor provides rectilinear motion and resistance is amplified through the attached strain gauge and sent to the digital recorder. Graphically displayed data can be analyzed, manipulated, compared, and stored within our PC program. This menu-driven program complements the unit's simple operation by allowing the user to save common test parameters for complete test customizing and reporting.

Flexibility

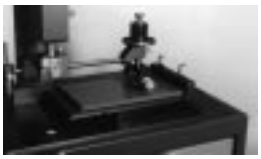
The Heidon 14DR provides unsurpassed versatility with its ability to measure multiple physical characteristics. These include static and dynamic friction coefficients and real-time variations in frictional resistance due to abrasion. In addition, by using appropriate fixtures (below), adhesion, scratch hardness, stickiness, tensile strength, and peeling resistance can be determined. The capability to interchange fixtures provides the user with unlimited growth potential. We offer a wide selection of jigs and can design components for special applications. In addition, our open design philosophy allows the user to add internally developed jigs and measurement procedures if desired.

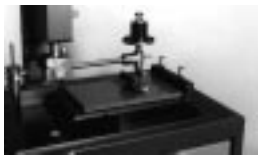

ASTM Flat Indenter


30mm Indenter


Ball Indenter


Roll Holder

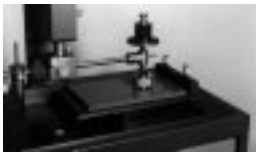

Tack Roller

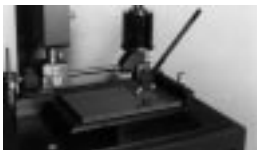

Blade Holder

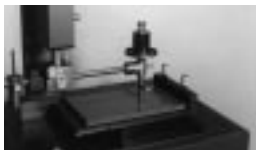

Scratch Stylus


Peeling Clip


T-shaped Peeling Clip


Steel Wool Holder


Pencil Holder


Eraser Holder

Speed

Tests can be quickly completed due to the minimal pretest preparation requirements. Longer tests can be conducted unattended due to the completely automated operation coordinated from our system's PC.

Ease of Use

Menu-driven operation, simple controls and adjustments, and our consistent test-controller interface allow all personnel to conduct accurate, precise tests on complex parts and components.

Other Friction Devices

All systems provide digital LED output displays while transmitting data to the attached recorder or PC. Pen recorders, protective covers, and all items necessary for operation are included to provide you with instant productivity.

Heidon 16 - Rotating Drum Tester

Sheet material is wrapped around a rotating drum and a load of up to 2000g is applied to one end of the sample. As the drum rotates, friction due to contact is transmitted through the load converter, displayed and transmitted to a recorder for analysis and comparison. The DC servo motor dramatically reduces the time necessary to reach test speed, allowing for dynamic friction measurements. This test is very useful in evaluating interface relationships of sheet or web material over roller surfaces.

Heidon 17 - Peel Resistance Tester

T-shaped, 180°, and tensile strength can be evaluated on this desktop model. Blocking tests to evaluate surface adhesion can also be performed. Very small pieces (single threads, hair strands, etc.) can be accurately measured. A test sample is clamped on both sides. The clamps separate at a predetermined velocity and resistance is recorded by the strain gauge.

Heidon 18L - Scratch Resistance Tester

A conical stylus, an R-processed tip (.005 to 1.0mmR) is loaded on the test piece. Regardless of thickness or hardness, most samples can be tested by using the appropriate stylus from our wide selection of available configurations and materials. As the mobile base travels, an increasing load is continuously applied to the piece. Load ranges can be varied by substituting different weights. Initial calibration can be completed in less than 10 seconds, eliminating tedious pretest procedures common to other units. In addition to scratch resistance, scratch hardness can also be measured (scratch width is visually evaluated) by using fixed loads instead of the continuous weights.

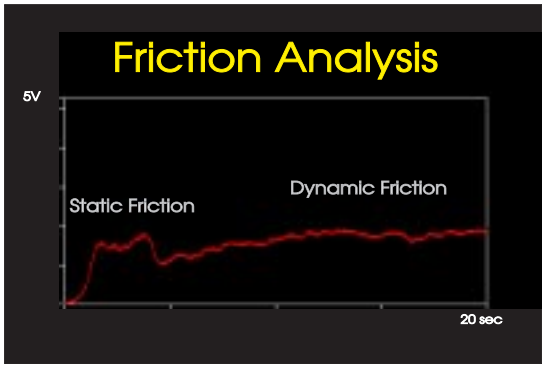
Heidon 20 - Disk-Ball Friction Tester

Used to evaluate friction and abrasion on rotating parts (floppy, hard, and optical disks, etc.), the test part is loaded on a spinning turntable. A disk is loaded for surface contact, or a ball indenter is loaded for point contact. Highly accurate abrasion tests are possible, even with minimum loads. Speeds can be varied from 10-600 RPM and the digital tachometer allows for measurements up to 1 million revolutions.

Heidon 22 - Surface Property Tester

This system evaluates coating adhesion by measuring scratch resistance during continuous loading of a scratch stylus. Abrasion can be evaluated by using a ball indenter. The test piece and the continuous loading guide are put in simultaneous motion.

Minute frictional changes are easily noted, allowing for evaluation of peeling/scratch resistance in very low load ranges. Both single and repeat (up to 9,999 tests) modes can be used. The peeling load is considered the adhesion measurement. These tests are very useful when evaluating hard films for wear and scratch resistance.



Heidon 94 - Handheld Friction Meter

This portable analyzer will measure the coefficient of static friction in less than ten seconds on most dry and wet surfaces. Using a frictionless slider, a voice-coil motor increases the force vector until the slider plate overcomes frictional resistance and begins to move. Opposing force vectors are measured, and the coefficient calculated.

Battery-powered, the Heidon 94 provides tremendous flexibility as the slider plates can be interchanged to fit nonstandard (curved, angled) part or specific applications such as rubber soles on non-wax floors or lubricants on metal substrates. Kett offers a variety of jigs, or you can design your own specific components.

Other Property Testers

Heidon 24 - Recovery Tester

Developed initially for the paint industry, a specified load is applied to the test piece and then removed. Displacement is displayed to 10um resolution. Viscoelastic fatigue can be tested by repeating this operation up to 1 million cycles. This procedure helps determine the durability and texture of clothing, leather, synthetic fabrics, carpets, sealing, packaging, and padding materials, as well as the characteristics of resins, foods, artificial skin, and other conforming materials.

Summary

Kett offers a tremendous array of measurement devices to handle most surface property analyses. Our testing systems will perform to your most stringent expectations. If you wish to place an order or if you require additional guidance on model selection,

CALL TOLL FREE

(800) GET-KETT
(800) 438-5388

Specifications

Model	14DR	16	17	18L	20	22	94	24
Principle of Measurement	Multiple	Rotational Friction	Peeling Resistance	Single Scratch	Rotational Friction	Multiple Scratch	Static Friction	Displacement
Travel Speed (mm/min)	30-6000	3-3000 rpm	100-1000	600	10-600 rpm	60-600	N/A	n/a
Travel Distance (mm)	1-100	N/A	150	100	N/A	1-50	N/A	0-8
Measurement Range (g)	0-2000	0-2000	0-1000	0-200	0-4000	0-1000		200-1000g
Measurement Storage	PC	N	N	PC	PC-Opt	PC	Average	PC Opt
Test Parameters Stored	Y	Y	Y	Y	Y	Y	N/A	Y
Accuracy - % Full Scale	+/- .05	+/- .05	+/- .05	+/- .05	+/- .05	+/- .05	N/A	+/- .05
Motor	DC Servo	DC Servo	DC Servo	Synchronous	DC Servo	DC Servo	Voice Coil	N/A
Measurement Mode	Up to 9,999	Continuous	Single	Single	Continuous	Single/Rep.	Single	999,999
Printer	LR37221	LR37221	LR37221	LR37221	LR37221	LR37221		LR37221
Tests								
Static Friction	Y					Y		
Dynamic Friction	Y	Y				Y		
Abrasion	Y	Y			Y	Y		
Resistance	Y	Y	Y	Y	Y	Y		
Power	AC100V	AC100V	AC100V	AC100V	AC100V	AC100V	4-AA	AC100V
Test Piece Dimensions (mm)	240x100x80	2.54 wide	200x75	180x110x80	12.7 dia.	220x100x80	Any	80
Cover	Acrylic	Vinyl	Acrylic	Acrylic	Acrylic	Acrylic	Case	
Auto Zero Adjustment	Y	Y	Y	Y	Y	Y	Y	Y
Operating Temperature (°C)	0 - 50 C	0 - 50 C	0 - 50 C	0 - 50 C	0 - 50 C	0 - 50 C	0 - 50 C	0 - 50 C
Weight - Net (lbs)	64	62	60	64	60	60	2	60
Dimensions (WxDxH) (mm)	640x320x600	30Hx75Wx140-D	640x320x350	510x200x330	640x320x400	650x410x490	59x165x62	220x260x460
Warranty	All Kett tribogear testers are covered by a one - year manufacturer's warranty on parts and labor. Post-warranty maintenance agreements also available. Please call for information							

Tribology is our business! If your company requires quick, accurate measurements, please call Kett! We develop and manufacture a wide variety of analytical equipment for your laboratory, process, or field applications.

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