HEIDON

Tribogear

General Catalogue

TRIBOGEAR Series

Future vision

Deepen the knowledge regarding frictional wear greatly and be reliable to the customer.
We would like to introduce our company products in the world by applying the existing techniques and know-how, and contribute to the world of tribology.

This company's "Heidon" brand name derives from the nickname "Heidon" given to the company's founder Masuhei Nomura at the time when he was working as an apprentice. Even though the brand sounds like it may be a German word, our company is "Made in Japan".

トライボギア
TRIBOGEAR General Catalogue

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Portable Friction Meter

3D Muse

This Latest Muse Allows Measurement of Walls and Ceilings

Seeking an Ease of Holding Appropriate for Various Types of Measurement at All Heights and Angles

Using the Portable Friction Meter 3D Muse, which does not require operators to have special skills or experience, anyone can easily measure the static friction coefficient between objects.
From plane indoor surfaces to sloping surfaces, walls, ceilings, and even outdoors, this portable instrument allows friction measurement anywhere.

Because the photograph shows a prototype version, the product may be different in appearance.

World's First

Portable Friction Meter

TYPE:94i-Ⅱ

Measurement can be Carried out Easily over a Wide Range

The Muse Type: 94i-IIis a portable measuring instrument that can easily be used by anyone to measure the static friction coefficient between objects.
Previously, methods of measuring static friction generally used incline methods and strain gages, and their use was limited to locations such as laboratories. The inability to make measurements on-site was a weak point of these methods.
This unique instrument is offered as a "new static friction measurement method" that solves all of the above problems at once.

On-site Measurement allows Measured Values to be Used for Convincing and Satisfying Customers

The instrument's portable size makes it convenient for carrying around. For example, it can be used at construction sites while customers are present to describe in figures the difference of two wall materials by measuring the static frictions of the materials.
Because the tactile sensation of cosmetics and pharmaceuticals can be measured on-site to convince customers of the differences from other companies' products, the instrument will also be convenient for use as a sales tool in the manufacturing and distribution industries.

Accumulation of Data

The differences from other companies' products, such as the "touching sensation" and "moistness" can be easily measured, even by persons with no previous experience.
The instrument can also be conveniently used in laboratories for data collection in proposals for smaller-scale projects, and in creating proposals for new products.

Main Specifications

	TYPE:37
Measurement Range	Static Friction Coefficient 0.000-1.300
Display Resolution	0.001
Power Supply	Alkali Dry Cell Batteries (SUM-3 (AA) Size x 4)
Dimensions	Main Unit: W140mm×D42mm×H139mm
Standard Accessories	Slider, Alkali Dry Cell Batteries, Carrying Case, Operation Manual
Options	Exclusive AC Adaptor, PC Connection Kit

Average button

Multiple measurements of the same object are memorized, and the number of measurements and the average static friction coefficient are displayed.

The specification using SUM-3 (AA) dry cell batteries allows measurement to be quickly made in any location.

The static friction coefficient between the slider (contact maker) provided in the main unit and the test sample is displayed.
In the measurement, the operator needs only to place the main unit on the test sample and press the button. Operation is simple, and there are no differences in measurement due to individuals.
Fabrics and films can be attached to the slider.

World's First Portable Friction Meter

- Measurements by Anyone, Anywhere
- Measurement can be Carried out Easily over a Wide Range
- Possible to Transfer Data from the Built-in Memory to a PC

Main Specifications

	TYPE:94i-II
Measurement Range	Static Friction Coefficient 0.000-1.300
Display Resolution	0.001
Detector	VCM Photo Sensor
Display	7 Segment Red Color LED 4 Digits
Slider	Brass (Hard Chrome Finish) 40g
Power Supply	Alkali Dry Cell Batteries (SUM-3 (AA) x 4)
Dimensions	Main Unit: W188mm×D62mm×H64mm
Standard Accessories	Slider, Alkali Dry Cell Batteries, Slider Holder, Carrying Case, Screwdriver, O-ring, Operation Manual
Options	Exclusive AC Adaptor, PC Connection Kit, 6 Point Ball Holder, Rubber Slider

The sample object can be any material, including metal, glass, textiles, plastic, wood, cosmetics, and paper.
It is also possible to use an AC adaptor (option) to power the instrument.
Using the PC Connection Kit (Option), it is possible to read the data into a personal computer.

Surface Property Tester

TYPE:38

NEW

It's a good value for the price.

Real-time Measurement of Changes in Frictional Resistance due to Wear

- Repeating the friction of the return operation, the number of returns before changes to the surface condition and peeling of the film occurred can be determined from the increase and decrease in the frictional resistance.

Support for Various JIS Standards

- By replacing the attachment, it will be possible to carry out testing that conforms to JIS K7125, P8147 and L0823.

Surface Scratching Hardness Measurement JIS K5600

- Applying the prescribed vertical loading to the conical scratching needle, the size of the scratch width realized from the scratching is used to show the scratching hardness.
  Pencil scratching intensity testing is also possible.

Main Specifications

	TYPE:38
Travel speed	30mm-6000mm/min
Drive motor	AC Servo Motor
Drive method	Rack & Pinion
Travel Distance	1-100mm
Travel Mode	Single Mode: Auto Stop After Traveling Set Distance Repeat Mode: Both-way Operations over Set Distance
Measurement Range	0-1000gf
Table Dimensions	240mm×120mm
Safety Equipment	Overloading Safety Equipment High Frequency Noise Prevention Circuit
Dynamic Strain Amplifier	Zero Point Adjusting Range: Manual ±0.5mV/V or less, Auto Zero ±0.5mV/V or less Output (Non-linear): 0-±5V (±0.01% FS or less) Zero Point Drift: 0.01% FS/°C Gain Drift: 0.01% FS/°C Low Pass Filter: Approximately 500Hz
Usage Environment	0-50°C RH85% or less, non-condensing
Power Supply	AC100V 50/60Hz
Overall Dimensions	Main Unit:W630mm×D350mm×H390mm(MAX:H460mm)

Standard Accessories

Scratching Needle 1 piece, Vertical Gage 1 unit, Combination Weights 1 set, Power Cable (2P with E, 2m) 1 piece, Earth Wire 1 piece, Acrylic Cover 1 piece, Tools 1 set, Parts Case 1 box, Operation Manual 1 book

Portable Tactile Meter
TYPE:33

A Completely New Type of Measuring Instrument for Expressing Touch in Numerical Values

This instrument allows texture, feeling, and blending, which were previously difficult to quantify, to be shown numerically.
Using three strain gages, the resistances in the X, Y and Z directions is detected.
Operation only requires placing the sample on the test piece table and tracing the object with your finger or other object. Measurement can be easily carried out.
In addition, using the handy probe, samples that can not be loaded on the test piece table can also be measured.

Main Specifications

	TYPE:33
Sample Table Dimensions	100×100mm
Measurement Range	0-20N
Dynamic Strain Amplifier	Zero Point Adjusting Range: ±0.5mV/V
	Analogue Output: DC-4 to 4V
	Non-linearity: 0.01% FS±1 digit
	Zero Point Drift: 0.01% FS±1 digit
	Sensitivity Switching: 0.01% FS±1 digit
	Display Unit: Red-colored 7-segment LED
Usage Environment	0-50°C RH85% or less, non-condensing
Power Supply	AC100V 50/60Hz
Overall Dimensions	Measurement Part: W102mm×D150mm×H110mm (Not including fixed version W200×D200mm)
	Amplifier Part: W270mm×D150mm×H260mm (Not including projecting parts)

Standard Accessories

Power Cable (2P with E, 2m) 1 piece, Operation Manual 1 book

Options

Handy Probe

Both-Way Wear Tester
TYPE:30/30S

The Simplest Both-Way Wear Tester

This tester is focused on wear testing evaluation by visual inspection.
The Basic Grade Type: 30, and the Type: 30S with non-staged high speed adjustment function and specified rotation number auto stop function, are available.
In addition, the 2-series and 4-series specifications, in which testing can be carried out a number of times under the same conditions, are also available.

Main Specifications

	TYPE:30	TYPE:30S
Travel Speed	3000mm/min Possible to be changed on request	30-12000mm/min Possible to be changed on request
Drive Motor	AC Induction Motor (Fixed type)	AC Induction Motor (Variable type)
Drive Method	Eccentric Cam Method	
Travel Distance	50mm	10-50mm Possible to be changed on request
Travel Times	Possible to Count Up to 999,999 Times	With Specified Rotation Number Auto Stop Function up to 999,999 Times
Table Dimensions	180×120mm	
Usage Environment	0-50°C RH85% or less, non-condensing	
Power Supply	AC100V 50/60Hz	
Overall Dimensions	Main Unit: W480mm×D455mm×H200mm	

Standard Accessories

Combination Weights 1 set, Power Cable (2P with E, 2m) 1 piece, Tools 1 set, Acrylic Cover 1 unit, Parts Case 1 box, Operation Manual 1 book

Options

2-series Arm Specification, 4-series Arm Specification, Speed and Travel Distance Changing, etc.

Variable Normal Load Friction and Wear Measurement System

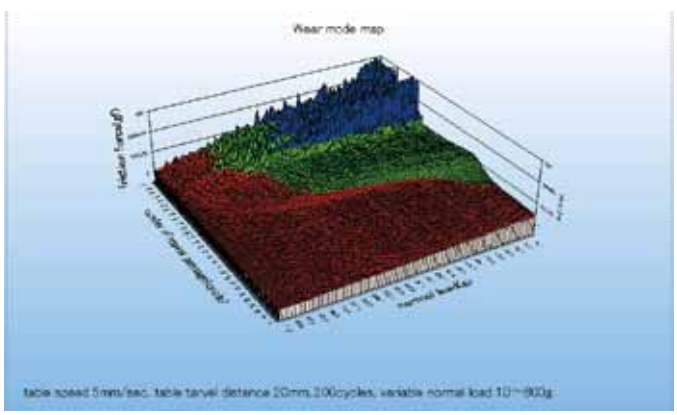
TYPE：HHS2000/HHS3000

The Tribogear Top Model

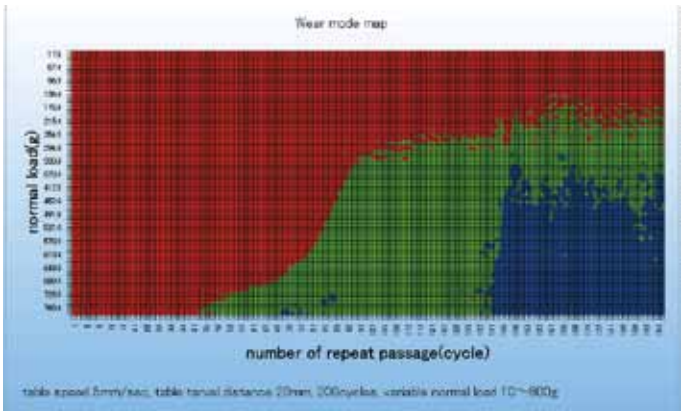
In this instrument, for a single measurement of test paper strip, it is possible to create 3-dimensional wear condition graphs showing the relationships between the number of wear movements, vertical loading, friction and wear volumes, and to determine the critical loading responding to wear transitions. Accordingly, not only will it be unnecessary to have multiple test pieces, but the testing time will also be greatly shortened and the requirement for troublesome data analysis can be eliminated, allowing excellent data to be obtained.

For the Tohoku University Graduate School of Engineering's Department of Mechanical Systems and Design and Hokkirigawa Laboratory.

Graph of relationships on friction force, number of sliding reciprocations and normal load. (3D)



Graph of relationships on friction force, number of sliding reciprocations and normal load.(2D)

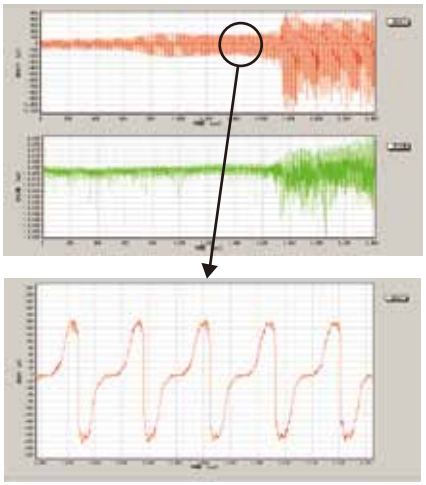


Adding Various Functions While Maintaining the Previous Reliability of the Measuring System

● he loading method uses the traditional Tribogear balance arm mechanism to maintain the high reliability.
Switching between the fixed loading and continuous loading testing modes can be easily carried out using the touch panel.
For the loading, too, the previous mechanism requiring weights to be placed manually has evolved into an automatic system based on numerical input.
Furthermore, a rich variety of functions have been added, including a moveable table with standard Y-direction stage and angle adjusting functions.

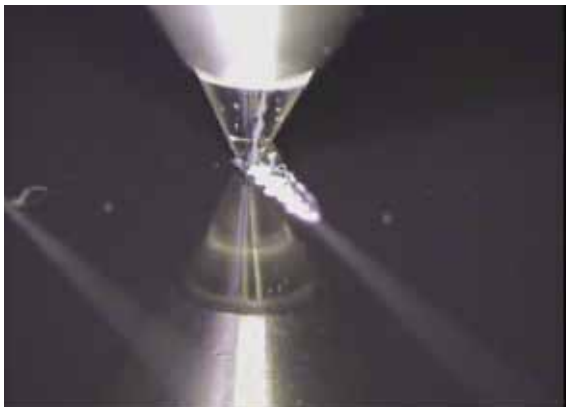
Examples of the wear mode map

Friction(Red) and displacement(Green) curves on the variable normal load measurement.



HHS3000

TriboCCD System (Option)



Main Specifications

	TYPE:HHS2000		TYPE:HHS3000
Travel speed	0.1-50mm/sec		
Drive Motor	AC Servo Motor		
Drive Method	Rack and Pinion		
Travel Distance	Fixed Loading: 1-50mm Loading Variation/Continuous Loading: 10-50mm		
Vertical Loading	High Loading Unit 10-1000g	Low Loading Unit 1-50g	100g-10000g
Loading Converter Capacity	19.61N	0.98N	196.1N
Table Size	120×100mm		
Table Travel Mode	Single/Repeat Switching		
Pre-start Mode	Fixed Loading/Continuous Loading Switching		
Safety Equipment	Overloading Safety Equipment (OVERLOAD) High Frequency Noise Prevention Circuit		
Dynamic Strain Amplifier	Zero Point Adjustment: Digital Servo Auto Zero Reset Method Output (Non-linear): 0-±5V (±0.05% FS or less) Sensitivity Switching: 0, 100, 50, 25, 10% FS SN Ratio: 60dB (Maximum Sensitivity) Response Frequency Characteristics: 2kHz/-3dB Filter: 1, 10, 100Hz, Pass (Low pass filter)		
Usage Environment	0-50°C RH85% or less, non-condensing		
Power Supply	AC100V 50/60Hz		
Main Unit Dimensions	W730×D490×H665mm		W1000×D520×H900mm

Surface Property Tester
TYPE:14FW

Multiple Functions Incorporated into One Unit

A AC servo motor permits a linear movement of the mobile base when loaded with a test piece.
The resistance transmission mechanism, consisting of the vertical arm and horizontal arm with two fulcrums, conveys the resistance received from each adapter to the detector of the load converter.
A zero balancer is provided at one end of the horizontal arm to balance the dead weight of each adapter so that the vertical loading becomes zero. In addition, at the other end of the arm there is an adaptor holder, and directly above this there is a weight pan on which weights up to 1000g can be applied.
The detected resistance is amplified by the dynamic strain amplifier and can be output to each recorder.
An easy to use touch panel has been utilized in the operation and display units.

Support for Various JIS Standards

- By replacing the attachment, it will be possible to carry out testing that conforms to JIS K7125, P8147 and L0823.

Surface Scratching Hardness Measurement JIS K5600

- Applying the prescribed vertical loading to the conical scratching needle, the size of the scratch width realized from the scratching is used to show the scratching hardness.
  Pencil scratching intensity testing is also possible.

Real-time Measurement of Changes in Frictional Resistance due to Wear

- Repeating the friction of the return operation, the number of returns before changes to the surface condition and peeling of the film occurred can be determined from the increase and decrease in the frictional resistance.

Measurement of Scratching Intensity

- Measurement of scratching intensity can be carried out in the horizontal direction.

Main Specifications

	TYPE:14FW
Travel speed	30mm-6000mm/min
Drive motor	AC Servo Motor
Drive method	Rack & Pinion
Travel Distance	1-100mm
Travel Mode	Single Mode: Auto Stop After Traveling Set Distance Repeat Mode: Both-way Operations over Set Distance
Measurement Range	0-100gf or 0-2000gf
Table Dimensions	240mm×120mm
Safety Equipment	Overloading Safety Equipment High Frequency Noise Prevention Circuit
Dynamic Strain Amplifier	Zero Point Adjustment: Digital Servo Auto Zero Resetting Method Output (Non-linear): 0-±5V (±0.05% FS or less) Sensitivity Switching 0, 100, 50, 25, 10% FS Filter 1, 10, 100Hz, Pass (Low Pass Filter)
Usage Environment	0-50°C RH85% or less, non-condensing
Power Supply	AC100V 50/60Hz
Overall Dimensions	Main Unit: W630mm×D350mm×H580mm

Standard Accessories

Loading Converter 1 unit, Flat Indenter 1 unit, Scratching Needle 1 piece, Vertical Gage 1 unit, Peeling Clip 1 unit, Combination Weights 1 set, Power cable (2P with E, 2m) 1 piece, Acrylic Cover 1 piece, Tools 1 set, Parts Case I unit, Operation Manual 1 book

Continuous Loading Scratching Intensity Tester

TYPE:18/18L

Indicates Scratch Resistance in Numerical Values using Continuous Loading

Conical scratch needles are used, which have R-processed tips (various types between 0.005-1.0mm). As the mobile base loaded with the test piece travels, continuous loading is applied to the scratching needle by the weight rolling on the arm.
The travel distance is 100mm, and by replacing the continuous loading weight it is possible to select 0-50g, 0-100g, or 0-200g.
For example, by adding the 0-200g continuous loading weights to the 100g fixed loading weight that is already loaded, it is possible to obtain 100-300g loading.

Main Specifications

	TYPE:18	TYPE:18L
Travel Speed	600mm/min (1200mm/min during the return)	
Driving Motor	Reversible Motor	
Driving Method	Rack and Pinion	
Travel Distance	100mm	
Vertical Loading	Continuous Loading: 0-50, 0-100, 0-200g	
	Fixed Loading: 200g	
Measurement Range	——	0-1000gf
Table Dimensions	200×120mm	
Safety Equipment	——	Overloading Safety Equipment High Frequency Noise Prevention Circuit
Dynamic Strain Amplifier	——	Zero Point Adjustment: Digital Servo Auto Zero Resetting Method Output (Non-linear): 0-±5V (±0.05% FS or less) Sensitivity Switching 0,100,50,25,10%FS Filter 1,10,100Hz, Pass (Low Pass Filter)
Usage Environment	0-50°C RH85% or less, non-condensing	
Power Supply	AC100V 50/60Hz	
Overall Dimensions	Main Unit: W535mm×D225mm×H340mm	

Standard Accessories

Combination Weights 1 set, Power Cable (2P with E, 2m) 1 piece,
Acrylic Cover 1 piece, Tools 1 set, Parts Case 1 piece, Operation Manual 1 book

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Continuous Loading Surface Property Tester

TYPE:22

Evaluates Film Adhesion from the Scratch Resistance caused by Continuous Loading

The scratching resistance and peeling resistance are recorded from the friction resistance between the test piece and the scratching needle due to the continuous loading. The adhesion is taken as the vertical loading when film peeling occurs.
The resistance is detected directly from the scratching needle. Because needle tips are available from 5μmR to 200μmR, a wide range of films are supported, from thin films to thick films, and from soft films to hard films.

Main Specifications

	TYPE:22L	TYPE:22H
Travel Speed	60-600mm/min	
Driving Motor	Mobile Base: Pulse Motor, Continuous Loading Weights: Pulse Motor	
Driving Method	Mobile Base: Rack & Pinion, Continuous Loading Weights: Ball Screw	
Travel Distance	1-50mm	
Travel Mode	SINGLE: Auto Stop after Moving the Set Distance	
	REPEAT: Carries out Both-way (maximum 9,999)	
Loading Range	0-100gf	0-1000gf
Vertical Loading	0-50g	0-500g
Test Piece Dimensions	Maximum 220×100mm, t8mm	
Safety Equipment	Overloading Safety Equipment High Frequency Noise Prevention Circuit	
Dynamic Strain Amplifier	Zero Point Adjustment: Digital Servo Auto Zero Resetting Method Output (Non-linear): 0-±5V (±0.05% FS or less) Sensitivity Switching 0,100,50,25,10%FS Filter 1,10,100Hz, Pass (Low Pass Filter)	
Usage Environment	0-50°C RH85% or less, non-condensing	
Power Supply	AC100V 50/60Hz	
Overall Dimensions	Main Unit: W650mm×D410mm×H490mm	
Options	22L and 22H Joint Use Type	

Standard Accessories

Loading Converter 1 unit, Ball Indenter 1 unit, Diamond Scratching Needle I piece, Vertical Gage 1 unit, Continuous Loading Weights 1 set, Combination Weights 1 set, Reset Cable 1 unit, Power Cable (2P with E, 2m) 1 piece, Acrylic Cover 1 unit, Tools 1 set, Parts Case 1 box, Operation Manual 1 book

Torque Type Friction and Wear Tester TYPE:20

Disk-on-disk and Ball-on-disk Friction and Wear Testing

The torque converter is directly connected to the turntable on which the test piece can be mounted.
For the loading, it will be possible to select the disk for surface contact and the ball indenter for point contact.
Because the disk and the ball indenter can both be balanced using the dead weight, low loading can be used to carry out highly accurate friction and wear testing.

Main Specifications

	TYPE:20
Travel Speed	10-3000rpm (Maximum 999,999 times rotation counter)
Driving Motor	Brushless Motor
Measurement Range	0-4000g/cm
Turntable Diameter	5 inches
Indenter Travel Range	From the turntable center to the circumference
Safety Equipment	Overloading safety equipment High Frequency Noise Countermeasure Circuit
Dynamic Strain Amplifier	Zero Point Adjustment: Digital Servo Auto Zero Resetting Method Output (Non-linear): 0-±5V (±0.05% FS or less) Sensitivity Switching 0,100,50,25,10%FS Filter 1,10,100Hz, Pass (Low Pass Filter)
Usage Environment	0-50°C, RH 85% or less, non-condensing
Power Supply	AC100V 50/60Hz
Overall Dimensions	Main Unit: W630mm×D310mm×H470mm

Standard Accessories

Sampling Disk 5 inch Diameter 1 unit, Ball Indenter 1 unit, Relay Cable 1m, Combination Weights 1 set, Power Cable (2P with E, 2m) 1 piece, Earth Wire 1 piece, Acrylic Cover 1 unit, Parts Case 1 box, Operation Manual 1 book

Static Friction Coefficient Tester TYPE:10

Easy Static Friction Coefficient Measurement Allows Use as a Research, Inspection and Teaching Aid

The test piece is installed on the ascending board and flat indenter.
The ascending board is provided with a sensor that monitors the movement of the flat indenter.
The ascending board starts from the horizontal position, and the tilt increases when the measurement begins.
The sensor detects the motion when the flat indenter begins to slide, and instantly stops the ascending board.
The angle and tanθ at this time should be read.

Main Specifications

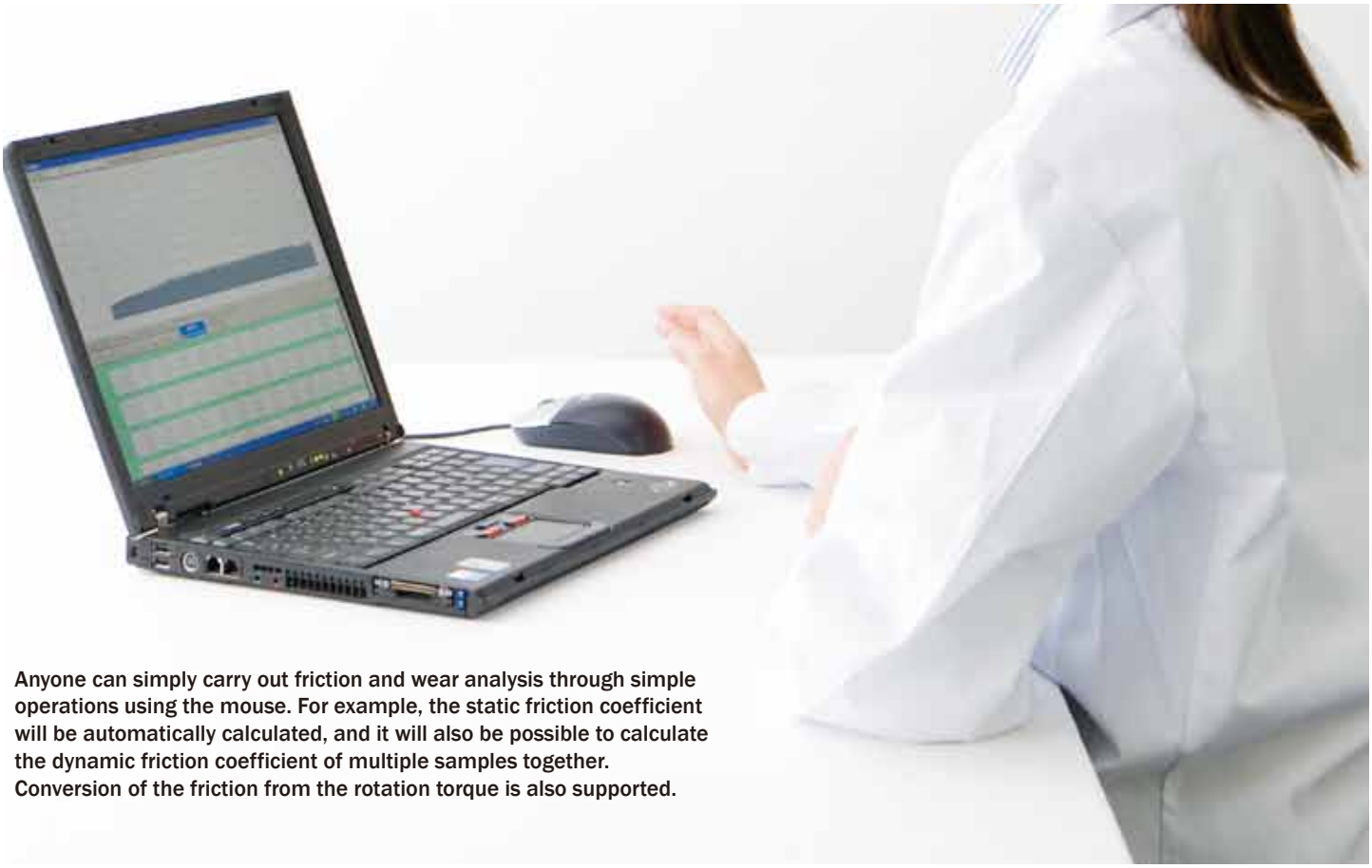
	TYPE:10
Ascending Speed	Average 10°/6 sec (10°/3 sec during return)
Driving Motor	Reversible Motor
Measurement Range	Static Friction Coefficient 0-1.5 (Minimum gradation 0.005) Slide Angle 0-56° (Minimum Gradation 0.5°)
Test Piece Dimensions	Ascending Plate: Maximum 300mm x 120mm Flat Indenter: 75 x 35mm (Contact surface)
Flat Indenter	Weight150g or 200g (By adjusting the weight)
Usage Environment	0-50°C, RH85% or less, non-condensing
Overall Dimensions	Main Unit: W470mm×D290mm×H420mm
Options	JIS P8147 Flat Inverter

Standard Accessories

Flat Indenter 1 unit, Power Cable (2P with E, 2m) 1 piece, Vinyl Cover 1 piece, Operation Manual 1 book

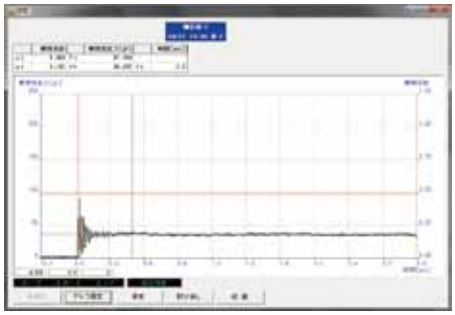
A Single Software Package for a Variety of Friction and Wear Analyses

General Purpose Friction and Wear Analyzing Software: TriboSoft

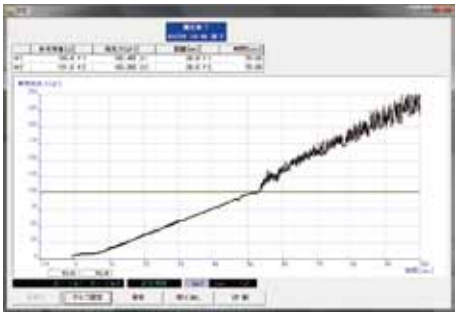


Anyone can simply carry out friction and wear analysis through simple operations using the mouse. For example, the static friction coefficient will be automatically calculated, and it will also be possible to calculate the dynamic friction coefficient of multiple samples together. Conversion of the friction from the rotation torque is also supported.

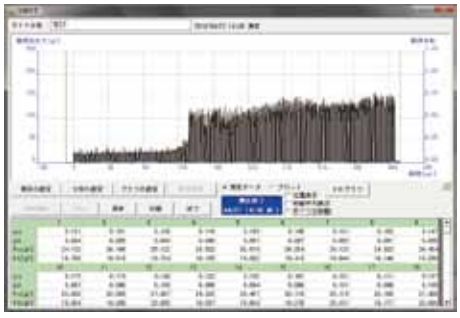
Fixed Loading Measurement



Continuous Loading Measurement



Wear Measurement



The screen is a Japanese version.

Main Specifications

	TriboSoft
A/D Converter	Connection Method: USB 1.1, Effective Resolution 16-bits. Power Supply: Uses Exclusive AC Adaptor , dimensions: W114 × H42 × D155 mm
Maximum Data Intake Speed Intake Point Numbers	0.1ms/500,000 points
Operating Environment	Windows XP, Vista, 7 (32bit Only)
Main Functions	Fixed Loading Measurement, Continuous Loading Measurement, Resistance Measurement, Friction Coefficient Calculation, Static Friction Coefficient Automatic Calculation, Dynamic Friction Coefficient Calculation, CGS/MKS Unit System Switching, Graph Overlay Writing, Data Text Saving, Graph Printing, and Result Printing, etc.

Standard Accessories USB Cable, Measurement Signal Intake Cable (BNC 3 Wires), Trigger Signal Cable, AC Adapter

TRIBOGEAR OPTION

ASTM flat indenter

Adapted specifications: ASTM D1894
Contact surface: 2.5X2.5inch
Can apply surface pressure to the paired test pieces after the sheet-type test piece is wound and fixed and the plate-type test piece is bonded.

Corresponding model

TYPE:14FW, TYPE:18, TYPE:22, TYPE:30, TYPE38
TYPE:HHS2000/HHS3000

30mm flat indenter

Contact surface: 30X30mm
Can apply surface pressure to the paired test pieces after the sheet-type test piece is wound and fixed and the plate-type test piece is bonded.

Corresponding model

TYPE:14FW, TYPE:18, TYPE:22, TYPE:30, TYPE38
TYPE:HHS2000/HHS3000

Ball indenter

Applies point pressure to the plate-and sheet type test pieces using a secured ball which slides the test pieces. This device is suitable to measure the difference between the test pieces based on the ball.

Corresponding model

TYPE:14FW, TYPE:18, TYPE:22, TYPE:30, TYPE38
TYPE:HHS2000/HHS3000

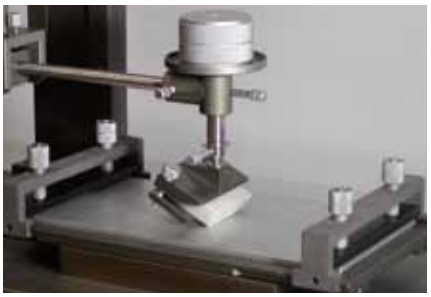
Roll holder

Applies linear pressure to the plate -and sheet type test pieces using a secured roller which slides the test pieces. This device is suitable to evaluate transportability.

Corresponding model

TYPE:14FW, TYPE:30

Blade holder



This device is suitable to measure the wiping resistance of the rubber blade and to measure the sliding resistance of the shoe sole to the floor.

Corresponding model

TYPE:14FW, TYPE:22, TYPE:30, TYPE38

Sand-contained rubber eraser indenter

Holds a cylindrical sand-contained rubber eraser in order to measure changes in friction due to the abrasion of the test piece.

Corresponding model

TYPE:14FW, TYPE:18, TYPE:22, TYPE:30, TYPE38
TYPE:HHS2000/HHS3000

Tack roller unit

Evaluates the stickiness of adhesives, floor materials or cosmetics from the rolling resistance of the stainless roller.

Corresponding model

TYPE:14FW

T-shape peeling unit

Adapted specifications: JIS P8139 This T-shape unit allows the stable measurement of both peeling resistance and tensile strength.

Corresponding model

TYPE:14FW

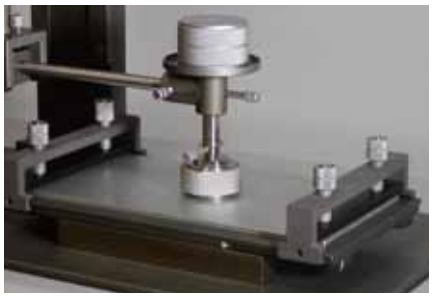
Peeling clip

Measures the adhesion and removability of adhesive tape or the peeling resistance and tearing strength of combined board layers.

Corresponding model

TYPE:14FW, TYPE:18, TYPE38

Steel-wool holder

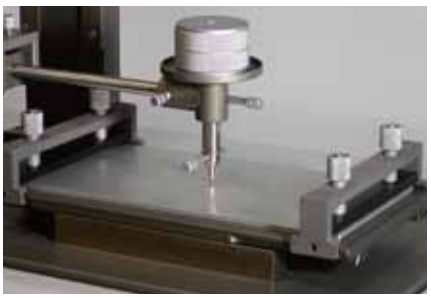


Holds steel wool, gauze or rubber in order to measure changes in friction due to the abrasion of the test piece surface.

Corresponding model

TYPE:14FW, TYPE:18, TYPE:22, TYPE:30, TYPE38
TYPE:HHS2000/HHS3000

Scratch needle



Adapted specifications: JIS K6718 Evaluates the scratch hardness of various materials and the adhesion of vacuum evaporated or paint film.

Corresponding model

TYPE:14FW, TYPE:18, TYPE:22, TYPE:30, TYPE38
TYPE:HHS2000/HHS3000

45°pencil holder

Adapted specifications: JIS K5600 (scratch test) Measures the scratch hardness of coated surfaces and evaluates how smoothly pens or pencils write.

Corresponding model

TYPE:14FW, TYPE:18, TYPE:22, TYPE:30, TYPE38
TYPE:HHS2000/HHS3000

Heating Mechanism

Corresponding model

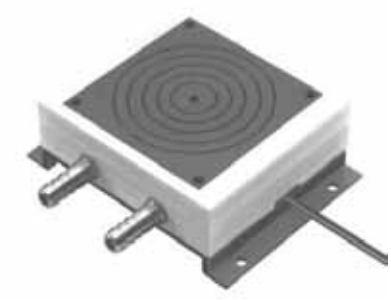
TYPE:14FW, TYPE:18, TYPE:22, TYPE:30, TYPE38
TYPE:HHS2000/HHS3000

Liquid Receiving Vat

Corresponding model

TYPE:14FW, TYPE:18, TYPE:22, TYPE:30, TYPE38
TYPE:HHS2000/HHS3000

Cooling Mechanism



Corresponding model

TYPE:14FW, TYPE:18, TYPE:22, TYPE:30, TYPE38
TYPE:HHS2000/HHS3000

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