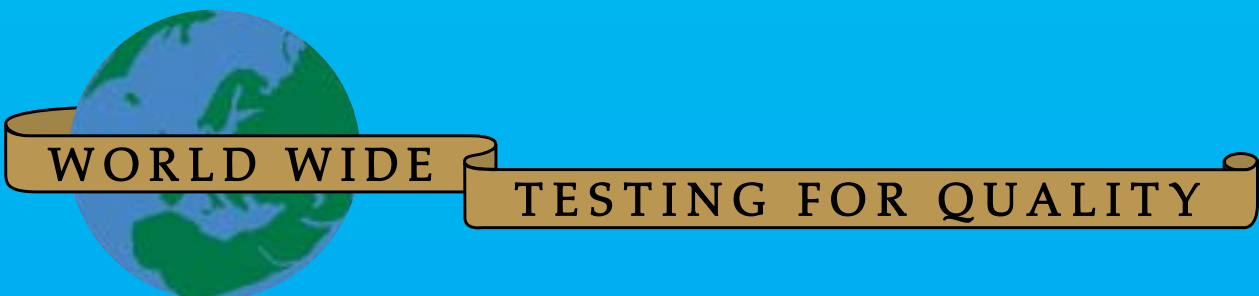


RAY-RAN POLYTEST

STATIC - DYNAMIC COEFFICIENT OF FRICTION

Microprocessor Controlled Measurement



RAY-RAN

Microprocessor Controlled Advanced

The well proven Ray-Ran microprocessor technology used throughout the Polytect range of testing equipment has been incorporated into the Friction Tester. The microprocessor integration has taken static and dynamic friction measurement accuracy to new levels.

The machine's operation is ergonomically simple. Parameters and results are displayed in the large, easy to read LCD. Data entry is via a simple touch keypad. Test procedures are self prompting direct from the microprocessor. The built-in printer gives hard copy test results and batch statistics.

Supplied as standard is an RS232 output and a Windows based software programme. Both tabular and graphical presentation of results are given. A temperature controlled platen up to 120°C, and a freezer bed with a minimum temperature control to 0°C are available. Fixtures and facilities for Peel testing of pressure sensitive materials to all International Test Standards are available as an option.



LCD DISPLAY

Provides auto prompts for test procedures, calibration and test results.

KEYPAD DATA ENTRY

All data entry via ergonomically simple keypad.

SLED VELOCITY

Variable speed to 1800 mm/minute

LOAD CELL

1kg supplied as standard – larger capacities available on request

PEEL TEST

For pressure sensitive material
180° peel attachments

HEATED PLATEN

Supplied with digital temperature control.

FREEZER PLATEN

Minimum operating temperature 0°C.

SLEDS

Supplied to ASTM & ISO Standards or to customer requirements.

TEMPLATES

Can be provided to any International Test Standard requirements.

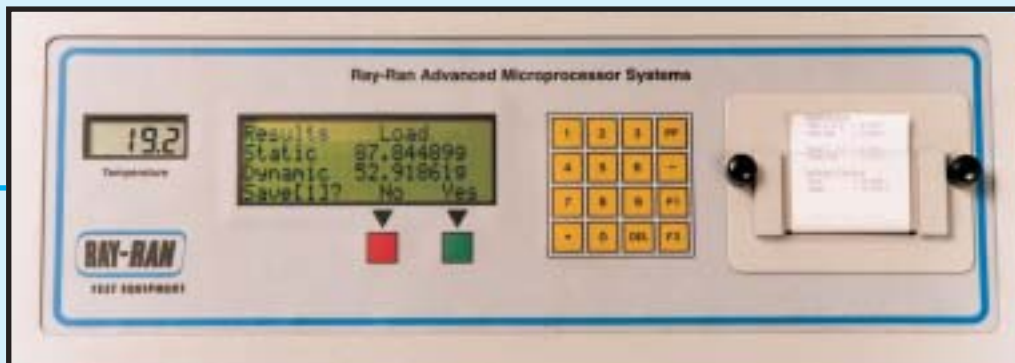
CALIBRATION

Fixture and test weight supplied with simple instructions.

Advanced Static and Dynamic Friction Measurement

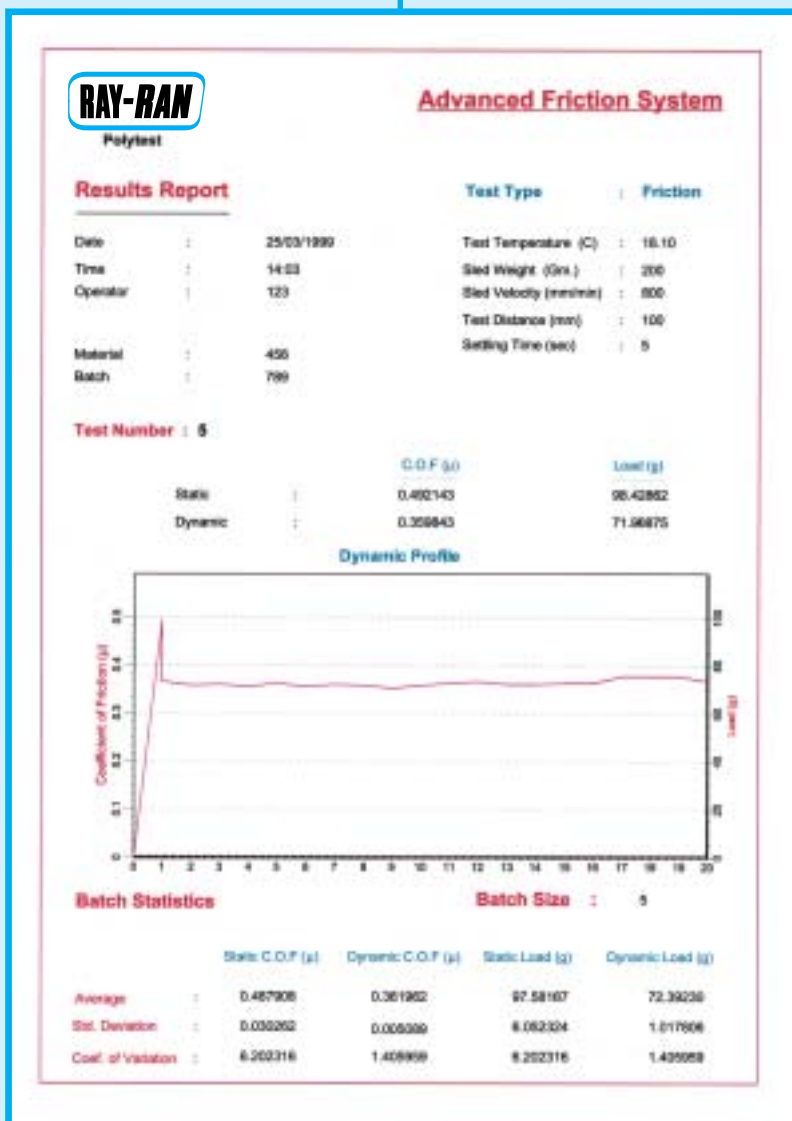
TEMPERATURE

Ambient bed temperature recorded and printed for each individual test.



DATA FILE CAPTURE

RS232 Output and Ray-Ran Friction software for Windows supplied as standard.



HARD COPY PRINTOUT

Friction Tester Results Printout

Test Parameters

Batch Started At : 10:39 01/04/99
 Operator ID No. : 123
 Material Reference : 456
 Batch Reference No. : 789
 Settling Time : 5 secs
 Sled Weight : 200 g
 Sled Velocity : 800 mm/min
 Surface Temperature : 17.20 °C
 Test Distance : 100mm

*** Friction Test ***

Test Results (Number 1)

Static
 Coeff. of Friction : 0.478913
 Load : 95.78268 g
 Dynamic
 Coeff. of Friction : 0.333384
 Load : 66.67676 g

Test Results (Number 2)

Static
 Coeff. of Friction : 0.468329
 Load : 93.66594 g
 Dynamic
 Coeff. of Friction : 0.346617
 Load : 69.32336 g

Test Results (Number 3)

Static
 Coeff. of Friction : 0.500000
 Load : 100.0161 g
 Dynamic
 Coeff. of Friction : 0.333384
 Load : 66.67676 g

Batch Statistics

No. of Tests : 3

Mean

Static C. of F. : 0.482441
 Static Load : 96.48819 g
 Dynamic C. of F. : 0.337795
 Dynamic Load : 67.55891 g

Standard Deviation

Static C. of F. : 0.016168
 Static Load : 3.233550 g
 Dynamic C. of F. : 0.007642
 Dynamic Load : 1.528367 g

Coefficient of Variation

Static : 3.351212 %
 Dynamic : 2.262273 %

RAY-RAN

Advanced Friction System

Friction is often referred to as a result of the sliding motion (action) of one body moving over another body. To cause this motion to take place, the force acting at right angles to the normal weight of one body acting on the other must overcome the resistance to the motion which is known as friction. The determination of friction is calculated as follows, and it can readily be seen that friction is the coefficient of the force divided by the weight.

Coefficient of friction is generally denoted by the Greek letter - μ .
The normal weight of one body acting on another body - W grams.
The force required to move (slide) one body over the other body - F grams.

$$\mu = \frac{F}{W}$$

Friction has two distinct characteristics. The static friction which resists the initial movement between two bodies, and the dynamic friction which opposes the movement once it has started. Generally, the static friction is greater than the dynamic friction. If you push or pull an object over a surface, it requires a greater load to start moving the object than the load it requires to keep it moving. The basic principals applied to friction between dry surfaces are as follows:-

- For low contact pressures between two bodies, that is, a pressure which does not distort/deform the surface structure/texture between the two bodies, the friction is directly proportional to the normal force acting between the two bodies.
- Providing the normal force between two bodies remains the same, the coefficient of friction is independent of the area of contact between the two bodies.
- At low sliding speeds between the two bodies, the friction is independent of the sliding velocity. However, it is generally found that at high speeds the friction tends to reduce in value.

Specification

- Measurement: Static friction, dynamic friction & peel testing.
- Load Cell: 1,000g standard. Larger load cells available.
- Sleds: 200g (63.5 x 63.5). Sleds to suit all International Test Standards.
- Test Speeds: Infinitely variable to 1,800mm/minute via microprocessor.
- Test Travel Distance: Infinitely variable to 350mm/minute via microprocessor.
- Heated Bed: Available upon request.
- Freezer Bed: Available upon request.
- Calibration: Equipment supplied as standard.
- Bed Ambient Temperature: Recorded digitally and printed for every test.
- Hard Copy printed results as standard.
- RS232 output with Windows software supplied as standard.
- Peel Test: Attachments for 180°. Other attachments available.



All Ray-Ran products meet with the requirements of CE legislation and are supplied complete with appropriate markings and certification.

SHIPPING CHARACTERISTICS

Net Weight: 30kg/Gross Weight: 45kg
Gross Size: 78cm x 48cm x 30cm

ELECTRICAL CHARACTERISTICS

220-240 volts 1ph 50Hz
110-120 volts 1ph 60Hz