

# FT1

» **Self-contained Friction Tester**

Conforms to international standards for friction testing including ASTM D 1894, ISO 8295 and TAPPI T549

» **High Mechanical Stiffness**

Modern linear guide technology, pre-loaded ball screws and advanced software compensation ensures high displacement precision

» **Dedicated Interface**

The console has a user interface dedicated to performing friction tests, hereunder calculating static coefficient of friction, kinetic coefficient of friction, peak and average load

» **Wide Speed Range**

High precision and improved productivity  
0.01-2023 mm/min (0.0004-80 in/min)

» **Exceptional Load Accuracy**

Load accuracy of +/- 0.5% down to 1% of load cell value provides high dynamic range

» **Scalable**

The FT1 can also be configured and used as a 1 kN universal test machine with the appropriate grips and fixtures and by using our acclaimed NEXYGENPlus software.



Coefficient of Friction, static and kinetic, is used in a variety of materials from lubricants, to films to household items (ceramic tiles) to determine the frictional characteristics of a material.

The FT1 is a bench mounted, single lead screw dedicated friction tester. A friction table is mounted directly on the machine, with a full set of accessories included to perform tests conforming to the requirements of ASTM D1894, ISO 8295 and TAPPI T549. The tester includes these standards as user configurable tests, with a further seven available for user custom configuration. User configurable test screens allow for final movement limits, calculation limits (relative and absolute), sled weights and dimensions.

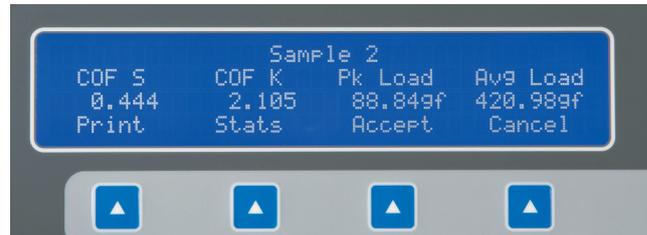
- Friction table and load cell included
- Dedicated user interface for friction
- Static coefficient of friction
- Kinetic coefficient of friction
- Peak and average load
- Saves up to 600 test sample results
- Plug 'n' Play, automatic identification of YLC series load cells
- YLC Series load cell options: 10N, 50N and 100N (Accuracy 0.5% of reading)

The machine is operated from the integral control console, which enables tests to be quickly and easily set up and performed. Large, positive feedback membrane switches with tactile and audible feedback enables test parameters to be established in conjunction with the backlit 4 line liquid crystal alphanumeric display.

The machine may be programmed to perform up to 10 different tests and the statistics for each type of test are automatically calculated including static coefficient of friction, kinetic coefficient of friction, peak load and average load. Up to 600 samples can be stored in any of the test setups.

The FT1 is a fully self-contained instrument, however an USB is provided to allow computer control using Lloyd Instruments NEXYGENPlus material test and data analysis software if required. The FT1 may also be configured as a

universal testing machine to perform tensile, compression, flexural and other mechanical tests up to 1kN (225lbf) with the appropriate grips and fixtures.



### Coefficient of Sliding Friction Jig

The jig consists of a horizontal flat bed incorporating a suitable clamping device and a sled, the underside of which is covered with a layer of smooth-faced foam rubber of medium apparent density.

## Technical Specification

Minimum Load Cell	5 N (1.12 lbf)
Bed Width	300 mm (11.8 in)
Bed Length	600 mm ( 23.6 in)
Eye End Diameter	15.85 mm ( 0.62 in)
Sled Weights	200 g (0.44 lb)
Span Adjustment	10 - 150 mm (0.39 - 5.91 in)
Force Capacity	1000 N (225 lbf)
Max. Crosshead Travel, Standard Travel ( <i>Between the Eye Ends</i> )	500 mm (19.7 in)
Crosshead Speed Range	0.01-2032 mm/min (0.0004-80 in/min)
Max. Return Speed	2032 mm/min (80 in/min)
Speed Accuracy ( <i>Unloaded</i> )	+/-0.2% of selected speed from 2% to 100% of max. speed
Min. Load Resolution ( <i>Load Cell Specific</i> )	0.0001N (2.2x10 <sup>-5</sup> lbf)
Load Cell Accuracy	+/-0.5% from 1% to 100% of load cell value
Extension Resolution	<0.15 microns
Data Sampling Rate	8kHz
Distance accuracy	+/-0.2% of reading from 2% to 100% of max. travel
Load Measuring System	EN ISO 7500:2004, Class 0.5 ASTM E4
Relative Humidity	20% to 85%
Operating Temperature	+5 to 35°C (41 to 95°F)
Storage Temperature	-17 to 54°C (0 to 130°F)
Supply Voltage (+/- 10%)	115VAC/230VAC, 50-60Hz
Max. Power Requirement	150VA
Weight (standard travel)	52 kg (115 lb)
Weight of Friction Table	3 kg (6.7 lb)

All systems conform to relevant EU standards and are CE marked. On site verification as per ASTM E4 and ISO 7500-1 recommended.

## NEXYGEN<sup>Plus</sup> Materials Testing and Data Analysis Software

### NEXYGEN<sup>TM</sup> PLUS

NEXYGEN<sup>Plus</sup> materials testing software is the hub of the Lloyd Instruments materials testing system. This extraordinarily easy to use and flexible software, allows the operator to control and monitor all aspects of the system from a single front end, ensuring fast, reliable and powerful testing and data analysis for tensile, compression, peel, creep, relaxation and flexural test applications.

#### Features

- Large built-in library of test methods meeting international test standards
- Intuitive User Configurable Test facility
- Video and still capture for visual analysis
- User access settings and data traceability enabling compliance with FDA 21 CFR Part 11
- Built in SPC functionality for continuous monitoring of process parameters such as Cp and Cpk
- Microsoft Office<sup>®</sup> integration for seamless transfer of data to familiar Windows<sup>®</sup> packages, Windows<sup>®</sup> 7 compatible
- Versatile data export facility to LIMS, SPC or data management systems
- Test automation and batch testing

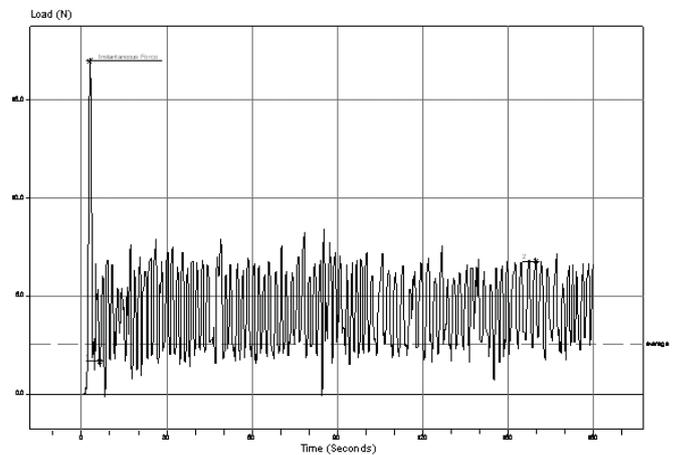
### Multi-lingual

NEXYGEN<sup>Plus</sup> software is available in the following languages: English • Spanish • French • German • Italian • Danish • Turkish • Chinese • Russian • Polish

### Test Creation

Getting started with NEXYGEN<sup>Plus</sup> is simple, thanks to:

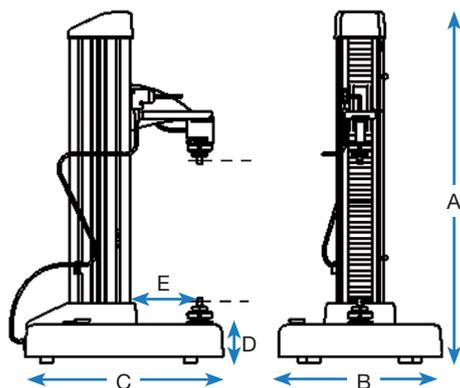
- An extensive built-in library of test methods covering ASTM, DIN, EN, ISO and other standards
- Test wizards for tension, compression, tearing, peeling, friction and flexural tests
- The User Configurable Test facility, ideal for product and component testing, R&D use and specialised testing



### Ordering Information

Order number					Description
FT1					FT1
					<b>Model</b>
S					Standard Travel
					<b>Operation</b>
C					Main Console
					<b>Power</b>
115V					US Power Cord
230V					UK and Euro Power Cord
230V - CNAU					China and Australian Power Cord
					<b>Load Cell</b>
10N					Fitted with 10N YLC load cell
50N					Fitted with 50N YLC load cell
100N					Fitted with 100N YLC load cell
					<b>Order number sample</b>
FT1	S	C	230V	50N	FT1, Standard Travel, Main Console, UK and Euro Power Cord, Fitted with 50N YLC load cell

## Dimensions & Weight



A	Height (standard travel)	1001 mm (39.4 in)
A	Height (extended travel)	1301 mm (51.2 in)
B	Width (excluding console)	460 mm (18.1 in)
C	Depth	557 mm (21.9 in)
D	Base Height	108 mm (4.3 in)
E	Throat Depth	180 mm (7.1 in)

## Ordering Information - Friction Table Accessory

Customers, who wish to perform friction tests on other models of Lloyd Instruments materials testing machines, can purchase our friction table separately using the part numbers below.



Model	Description
TG112/LF	Friction table accessory for use with LFPlus test machine only
TG112/LRX	Friction table accessory for use with LRXPlus test machine only
TG112/LS	Friction table accessory for use with LS1 test machines

**AMETEK**<sup>®</sup>  
TEST & CALIBRATION INSTRUMENTS

Lloyd Instruments Ltd  
Steinyng Way, Bognor Regis • West Sussex, PO22 9ST • United Kingdom  
Tel +44 (0)1243 833 370 • uk-far.general@ametek.co.uk

Information in this document is subject to change without notice. ©2011, by AMETEK Inc., www.ametek.com. All rights reserved.



### AMETEK Test & Calibration Instruments

A business unit of AMETEK Measurement & Calibration Technologies offering the following industry leading brands for test and calibration instrumentation.

### LLOYD Materials Testing

#### Materials Testing Solutions

Materials testing machines and software from Lloyd Instruments guarantee the highest level of performance and capability for production testing, quality control, laboratory testing, research and education to provide expert materials testing solutions.

#### Davenport Polymer Test Equipment

Allows critical polymer parameters to be determined, including melt flow index and melt flow rate, intrinsic viscosity (IV) measurement of moisture-sensitive PET polymers and polymer density measurement.

#### Texture Analysers

The comprehensive program provides the platform to perform rapid, general food testing and detailed texture analysis on a diverse range of foods.

### Chatillon Force Measurement

Chatillon has been a hallmark in the industry since 1835. The hand held gauges and motorized testers have earned their reputation for quality, reliability and accuracy and they represent the de facto standard for force measurement.

### Newage Hardness Testing

Newage offers a comprehensive range of hardness testers, durometers, optical systems and software for measurement, data acquisition and analysis.

### JOFRA Calibration

The inventor of the portable high precision dry-block temperature calibrators. The calibration instruments program also covers precision thermometers and temperature baths, temperature sensors handheld instruments for pressure calibration and process signal calibrators for easy control loop calibration, measurements and simulation.

### M&G Calibration

Pneumatic floating-ball or hydraulic piston dead weight testers with accuracies to 0.015% of reading.

[www.lloyd-instruments.com](http://www.lloyd-instruments.com)

AMETEK Denmark (Denmark)  
Tel +45 4816 8000 • ametek@ametek.dk

AMETEK S.A.S. (France)  
Tel +33 (0)1 30 68 89 40 • general.lloyd-instruments@ametek.fr

AMETEK GmbH (Germany)  
Tel +49 (0)2159 9136 510 • info.mct-de@ametek.de

AMETEK Measurement & Calibration Technologies (USA)  
Tel +1 (727) 536 7831 • chatillon.fl-lar@ametek.com

AMETEK Singapore Pte Ltd (Singapore)  
Tel +65 6484 2388 • aspl@ametek.com.sg

AMETEK Commercial Enterprise Co. Ltd (China, Shanghai)  
Tel +86 21 5868 5111 • lloyd@ametek.com.cn

AMETEK Inc. (China, Beijing)  
Tel +86 10 8526 2111 • lloyd@ametek.com.cn