HARLAND MEDICAL SYSTEMS®

FTS7000

Friction Test System

A test instrument dedicated to measuring the friction properties of medical device surfaces

ON THE SURFACE
We touch life first

MACHINES

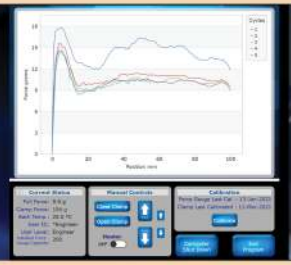
FTS7000
Friction Test System

MACHINES

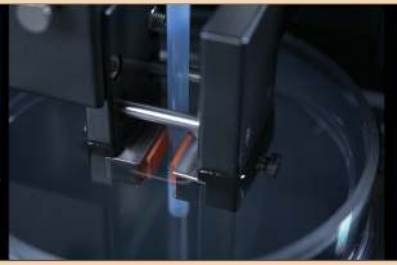
Harland automated product platforms designed specifically to apply and test performance materials for your products.

A compact versatile instrument for measuring lubricious coating performance on medical device surfaces

All new user interface powered by Testing-Works™ 2.0 Software lets users create, save and run test protocols and analyze data.



Test sample is drawn between friction pads clamped with a programmable force.



Integrated heater permits testing at elevated temperatures. Programmable into test protocol set-up. (Only available w/ console cart model)

Features:

- All new expanded User Interface
- All new TestingWorks™ 2.0 Software
- Selection of four hot-swappable force gauges, including new precise 80 gram capacity gauge
- Tabletop and console cart versions
- Optional programmable integrated heater (console cart version only)

Harland Medical Systems presents a compact, versatile instrument specifically designed for measuring lubricious coating performance on medical devices such as catheters, guidewires, introducers and similar products. The FTS7000 Friction Test System measures both surface friction and coating durability by drawing a test sample between two silicone rubber pads clamped at a programmable force and recording the pull resistance – making it an ideal surface property measurement tool for coating development, quality control, and competitive product testing.

For years the "pinch test" has been the standard for measuring the performance of lubricious coatings. The redesigned FTS7000 makes creating, running and analyzing these tests simple, accurate, and fast. The FTS7000 quickly guides you through setting up a test protocol, storing the protocol in memory, running a test, and analyzing the results.

Test samples are inserted into one of a variety of available sample holders and suspended from the FTS7000's force gauge. Clamping pressure and friction surface are provided by two silicone rubber pads located above a water bath. Dynamic Clamp Control maintains uniform clamp force should your sample's diameter vary over the length tested. After running a test, easily export raw data from the FTS7000 using one of its available data ports - transfer files to a local network via ethernet connection or USB flash drive.

The FTS7000 houses its own touch-screen, and enables easy creation of test protocols, test execution and customizable reporting of results.

Easy Setup: To run a test simply fasten your sample to one of the available sample holders, select or modify a test protocol and move the clamping mechanism to the desired starting position. Touch "Start Test" and the FTS7000 will do the rest.

Quick Calibration: The FTS7000 force gauge and clamp can be easily calibrated in just a few minutes using a Harland weighted calibration kit and the built-in calibration program that comes pre-installed with the machine.

Display of Results: As the test runs, the display shows the results in both tabular and graphic form. An information bar at the top of the screen displays the name of the running protocol, the applied clamp force, and the measured pull force. After a test is complete, a customizable test report can be viewed on-screen or sent to an external device via network or USB drive for more analysis. Users can choose to view the test graph with the cycle results displayed end-to-end or with the test cycles laid on top of one another. The overlay option makes "outlier" cycles easier to spot.

Intuitive Software: The FTS7000 utilizes Harland's completely re-designed and upgraded TestingWorks 2.0 software. This new edition allows operators to visually overlay multiple test cycle results; check test protocol and stored data integrity via verification checksums; and generate custom reports. Combined with its easy-to-use touchscreen interface, the FTS7000 simplifies creating, modifying and storing new test protocols. Three levels of user password protection (operator, technician, and engineer) ensure that only authorized personnel can create or edit protocols and alter other machine functions.

THE 4M FRAMEWORK™

Harland manages all of these elements as an integrated program to provide you with a complete surface enhancement solution tailored to precisely meet your particular technical, functional and economic requirements.

MATERIALS – **proprietary chemistries that enable advanced surface enhancement on your medical devices, healthcare disposables or life science products.** Harland provides unique, world class chemistry platforms for solving customer surface enhancement challenges.

METHODS – **processes and protocols to effectively and efficiently apply and cure surface enhancing materials.** Harland creates and validates robust methods that optimize the integration of Materials and Machines to meet your product's requirements.

MACHINES – **automated systems designed specifically to apply and test advanced Materials on your device.** Engineered to meet your technical, commercial and operating requirements including throughput and total cost of ownership.

MANUFACTURING – **with either Harland Contract Coating Services or customer- owned coating operations.** Harland is uniquely positioned to offer a full spectrum of surface enhancement manufacturing options based on your manufacturing strategy and volume requirements.

OPTIONS:

- Console cart with casters and leveling feet, includes extended water bath for testing longer samples (see Specification table for more details). Includes integrated pull-out keyboard and tray.
- Water bath heater and circulating pump enable testing at body temperature. Bath temperature is programmable into test protocol settings. Available in console cart version only.
- Available handheld barcode reader enables users to accurately select a test protocol for a barcoded device. Barcode reader minimizes operator error in selecting proper test protocol for bar-coded devices.
- Annual service and calibration programs available to protect your investment, keep FTS7000 software up to date, and extend the life of the machine.

HARLAND MEDICAL SYSTEMS®

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Specifications – FTS7000 Friction Test System

Maximum Device Diameter	1.5 cm
Maximum Stroke Length:	70 cm
Maximum Sample Test Length	
Table-top Model	25 cm
On Floor Stand	50 cm
Clamp Force Range	50 grams to 990 grams
Clamp Force Accuracy	± 10 grams
Pull Speed Range	0.1 to 2.5 cm/s
Pull Force Accuracy	
80 Gram Capacity Force Gauge	± 0.2 grams
200 Gram Capacity Force Gauge	± 0.4 grams
600 Gram Capacity Force Gauge	± 1.2 grams
1000 Gram Capacity Force Gauge	± 2.0 grams
Data Sampling Rate - programmable	1 – 10 data samples per mm
Heated Water Bath- programmable	Ambient – 50 degrees C
Display	Touchscreen, 15.6 inch diagonal, 1080 x 1920 pixels
Data Ports	1 – Ethernet, 3 – USB
Power Requirements	110/240 volt AC 50/60 Hz
Chassis Materials	Powder coated steel; anodized aluminium; Nylon 12
Weight	
Tabletop Model	Approx. 125 lbs. (57 kgs)
Console Cart	Approx. 300 lbs. (136 kgs)
Dimensions	
Friction Tester	43.5 in high x 30.0 in wide x 19.0 in deep
Console Cart	78.2 in high x 33.0 in wide x 20.0 in deep
Calibration	Program included in software
	Requires custom calibrated weight set
Replaceable Friction Pads	
Dimensions	0.5 in x 1.125 in x 0.125 in thick
Material selection	Silicone rubber 60A or 80A durometer hardness
Sample Holders Include	
	Alligator-style clip Collet style (Sizes: 0.031 in, 0.062 in, 0.093 in and 0.125 in) Pin vice style (accepts diameters up to 0.055 in)