

Friction Tests on Plastic Film in Accordance to ISO 8295

► The test in this application note determines the Coefficients of Friction for films and plastic sheet materials in accordance to BS EN ISO 8295, which is the international standard for determination of COF of plastic films and sheets. This standard requires Sled Inertia Compensation to be selected within the batch file of the NEXYGEN^{Plus} materials testing software.

Note: The FT1 from Lloyd Instruments is supplied pre-configured to comply to the BS EN ISO 8295 standard. However this application note takes into account friction tests that have a different travel limit and speed.



What is Required

FT1 Friction Tester

The FT1 is a friction tester with a horizontal friction table mounted directly to the machine. The friction

tester consists of a sled movement system and a force measurement system that enables it to calculate the exact friction of films, plastic sheets and similar materials.

The FT1 friction tester is supplied with a full set of accessories for performance of friction tests conforming to the requirements of ISO 8295,

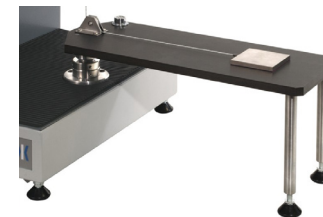
TAPPI T549 and ASTM D1894.

The user interface of the console for the FT1 friction tester is dedicated to performing friction tests and calculating static coefficient of friction, kinetic coefficient of friction, peak and average load.

- Bed Width: 300 mm (11.8 in)
- Bed Length: 600 mm (23.6 in)
- Crosshead Speed: 0.01 to 2032 mm/min (0.0004 to 80 in/min)
- Capacities: 1000 N (225 lbf)

TG 112 Friction Table

For this test the friction table TG 112 is used along with the NEXYGEN^{Plus} materials testing software that is supplied with the FT1 machine as part of the friction testing solution.



Sample Preparation

To obtain correct test results always make sure that the samples are free from contamination either from touch or from air-borne dust and similar.

The frame and friction table should be mounted on a firm bench and then leveled using the adjustable feet and supplied spirit level.

The sled should be placed on the bed as lightly and gently as possible to prevent any bonding taking place as this will affect the static coefficient value.

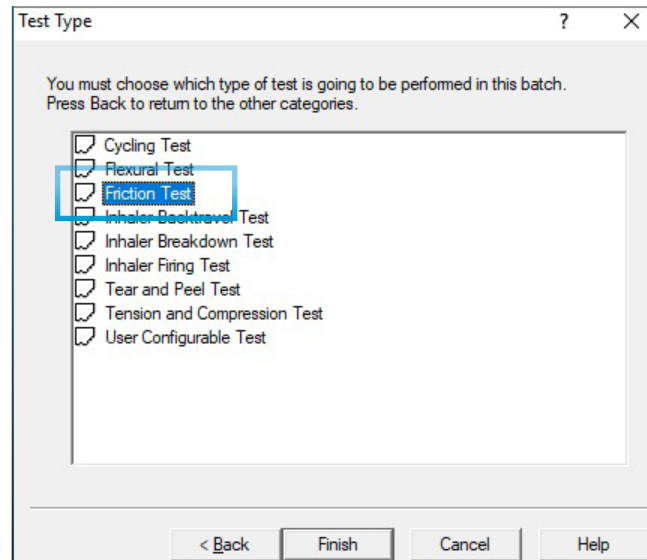


Step by Step Guide to NEXYGENPlus

Click on "Create a New Batch of Tests" on the front page of NEXYGENPlus.

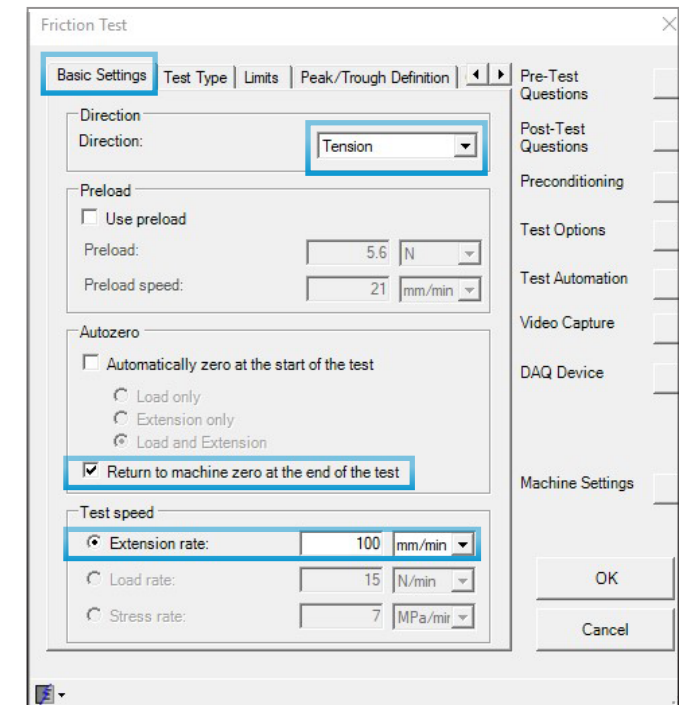


Choose "Friction Test".



On the Basic Settings tab choose:

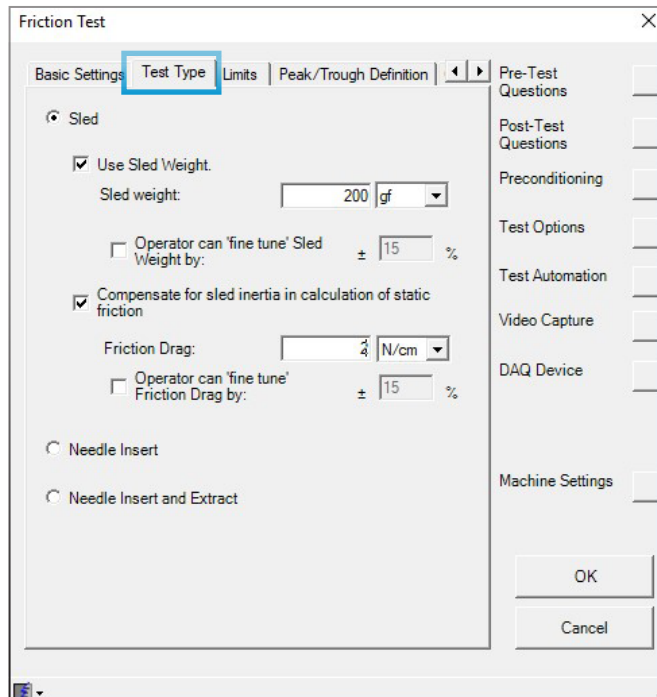
- Tension as Direction
- No preload
- No automatic zero
- Return to machine zero at the end of the test
- Test Speed: 100 mm/min



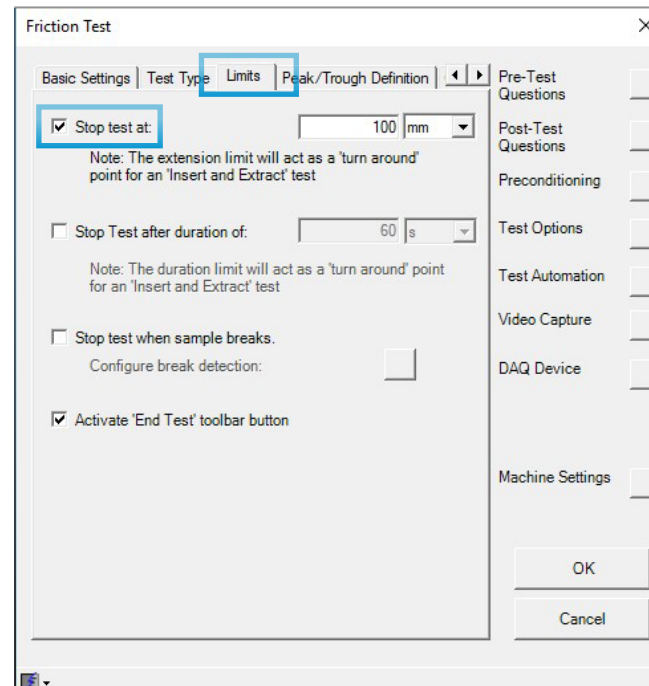
On the Test Type tab:

If a phenomenon of “chatter” is visible at the level of the pad, the spring must be removed from the link wire/sled.

The Compensate Sled Inertia check box must be unchecked.



On the Limits tab tick off the box “Stop test at”

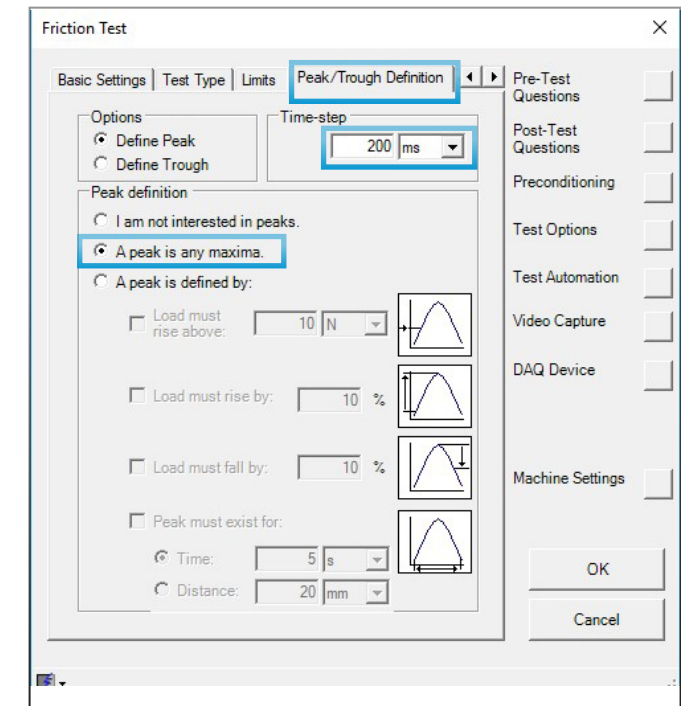


On the Peak/Trough Definition tab choose:

The value of 200 ms of time interval is used to decrease the time required for the calculation of the results.

This in connection with the PIC definition.

Selecting a Peak as a maximum and a step of 200 ms offers fast results in a reasonable time.



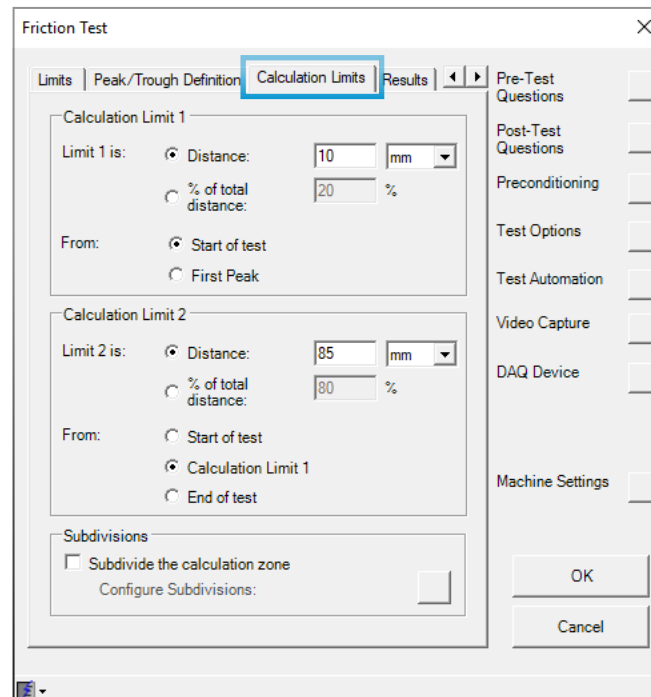
On the Calculation Limits tab:

Calculation limits are configured to allow static and kinetic results to be calculated.

As the test stroke is 100 mm, the limit 1 is set to 10 mm from the beginning. The static measurement will have to be done in this space. If the phenomenon does not intervene in this space, it can be increased post test.

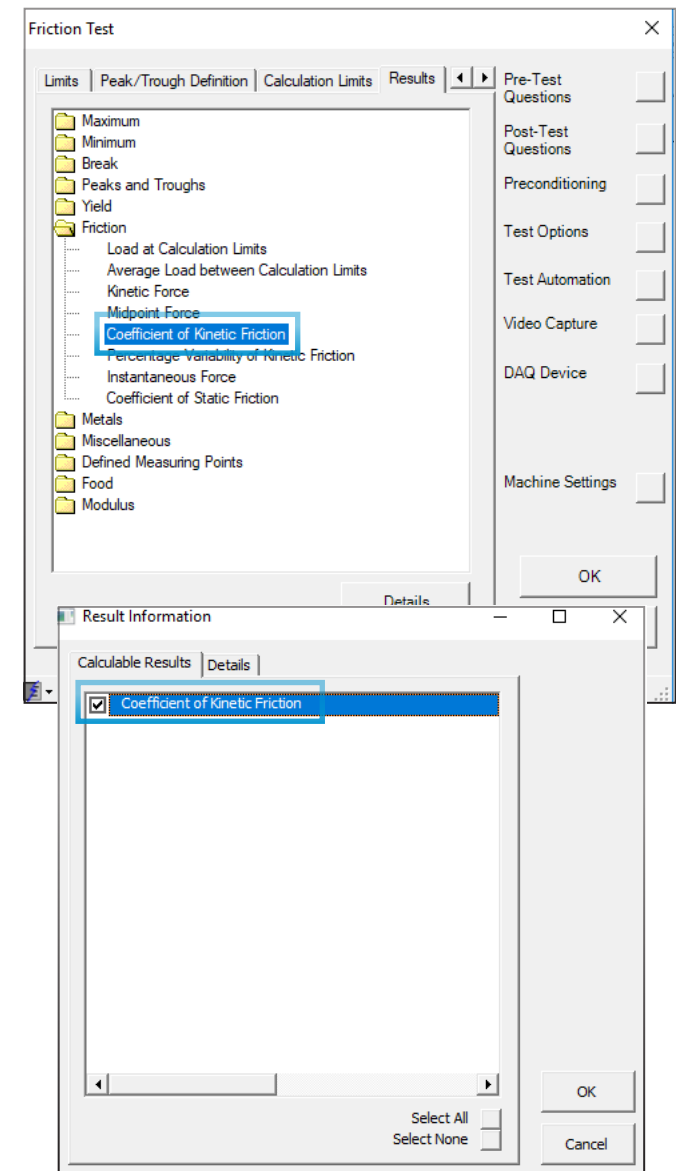
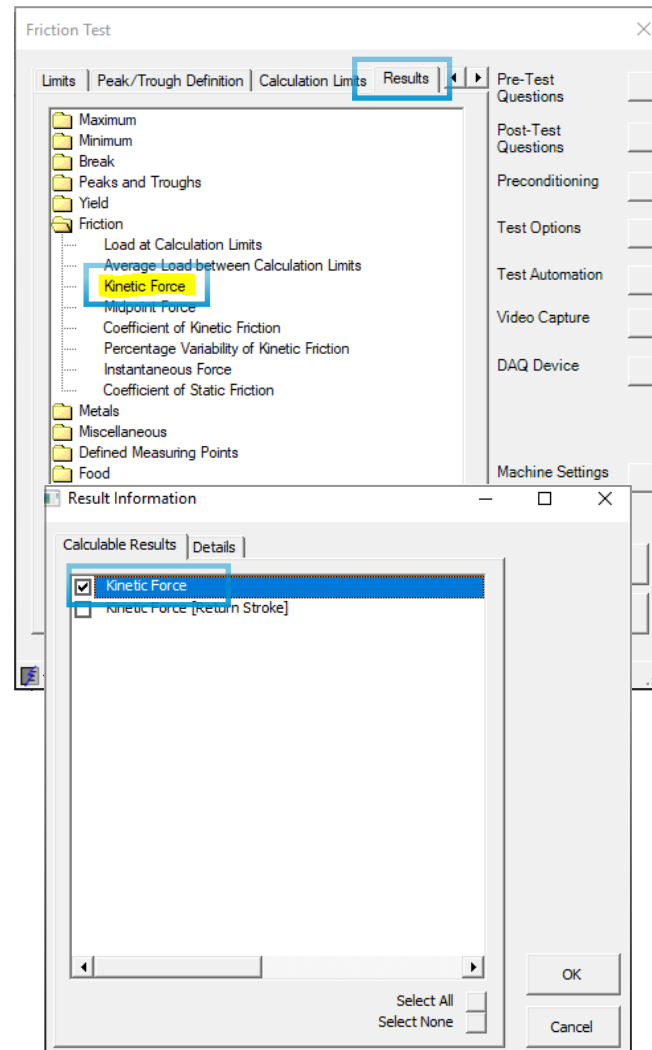
Limit 2 is set at 85 mm before the end of the 100 mm test.

The dynamic result will be the average force calculated between limit 1 and limit 2.



On the Results tab choose:

- Kinetic Force
- Coefficient of Kinetic Friction

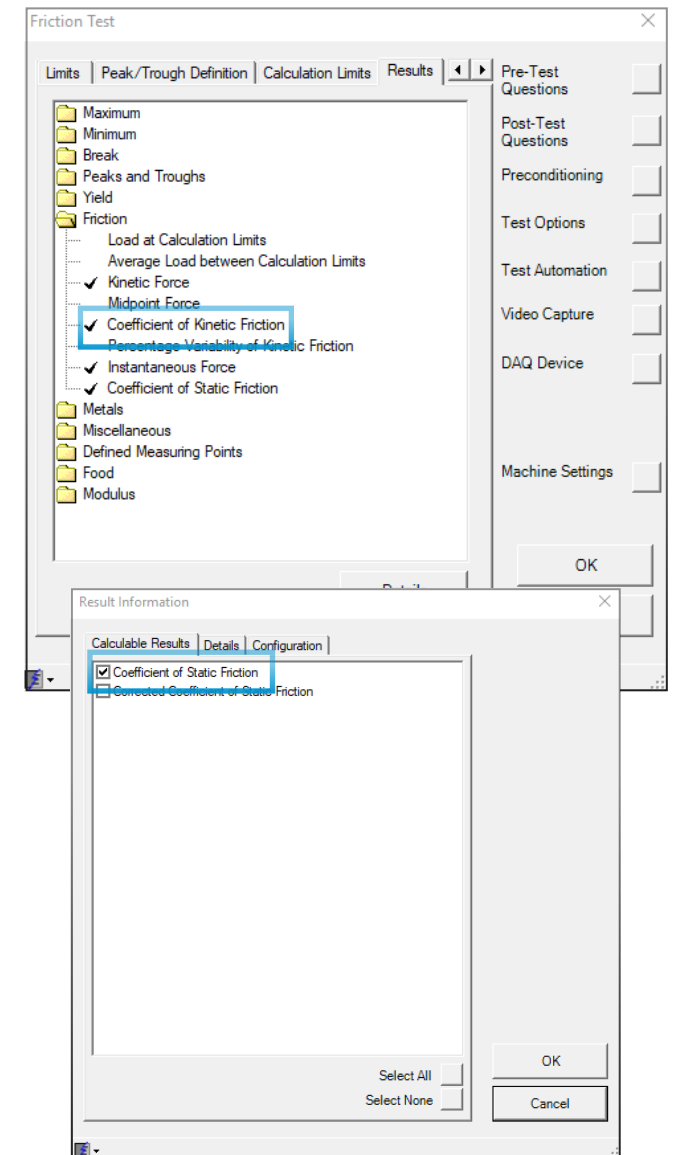
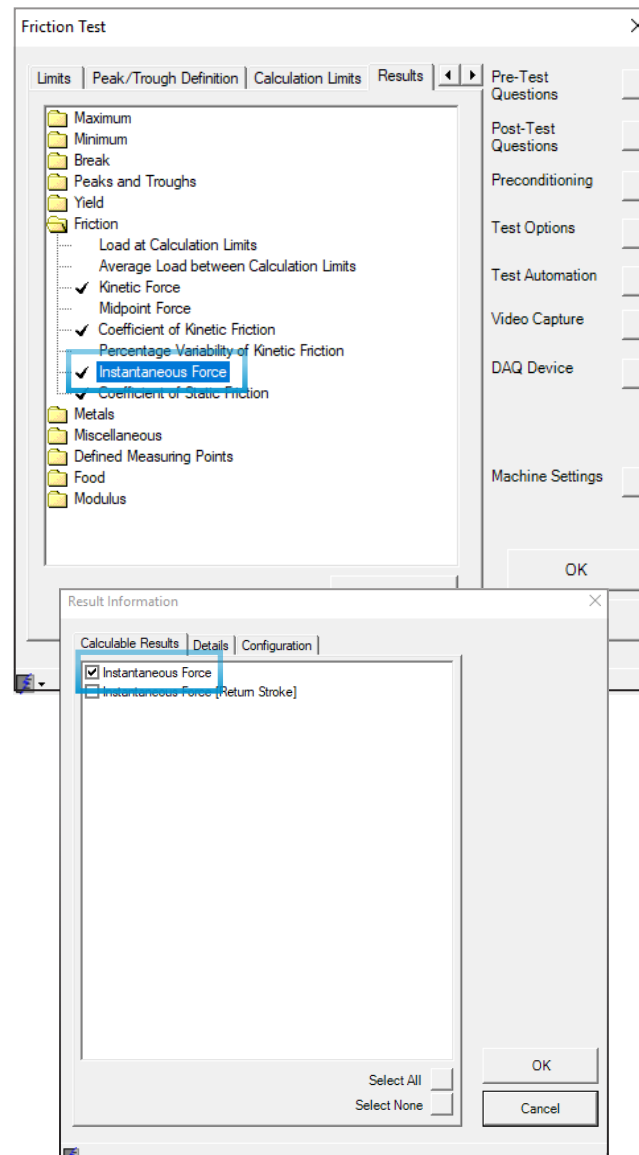
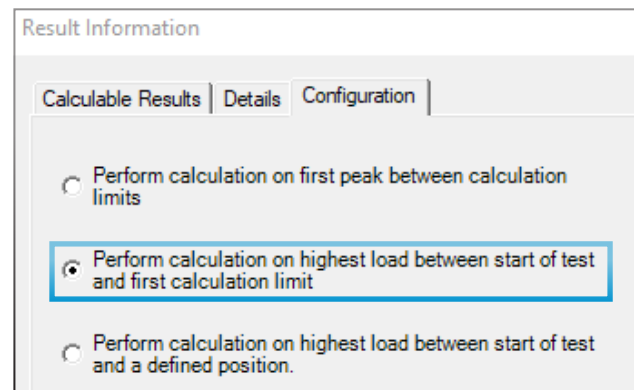


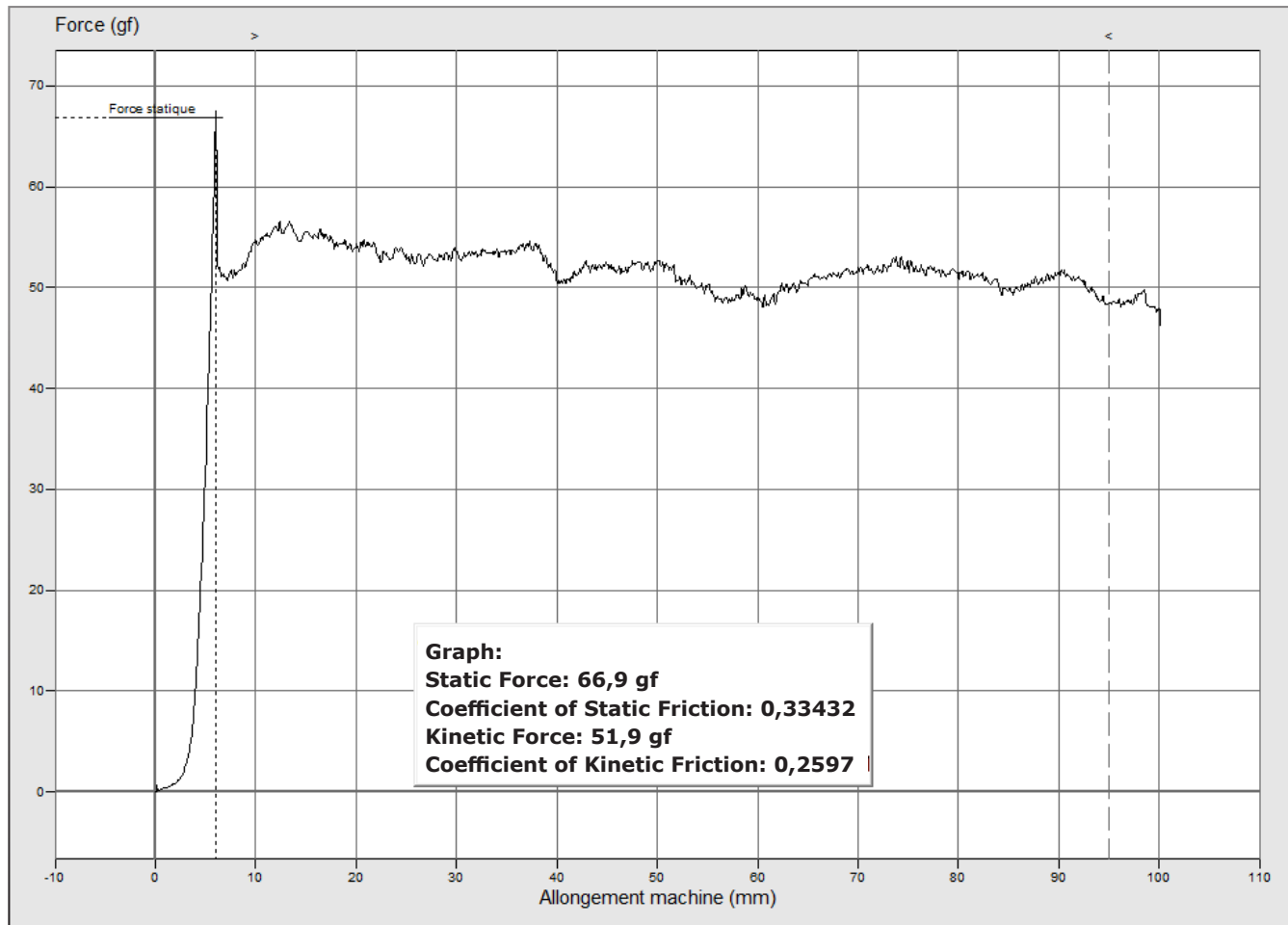
Then choose:

- Instant Force
- Kinetic Coefficient

On each of the "Configuration" tabs, choose:

Perform calculation on highest load between start of test and first calculation limit.





Test results from the friction test performed will be displayed in a graph highlighting:

- Static Force
- Static Coefficient of Friction
- Kinetic Force
- Kinetic Coefficient of Friction

For more information go to our website, www.ametektest.com, where you can find product information and additional information about friction testing.