

High Speed Linear Friction Tester (HSLFT)

Measuring the real μ

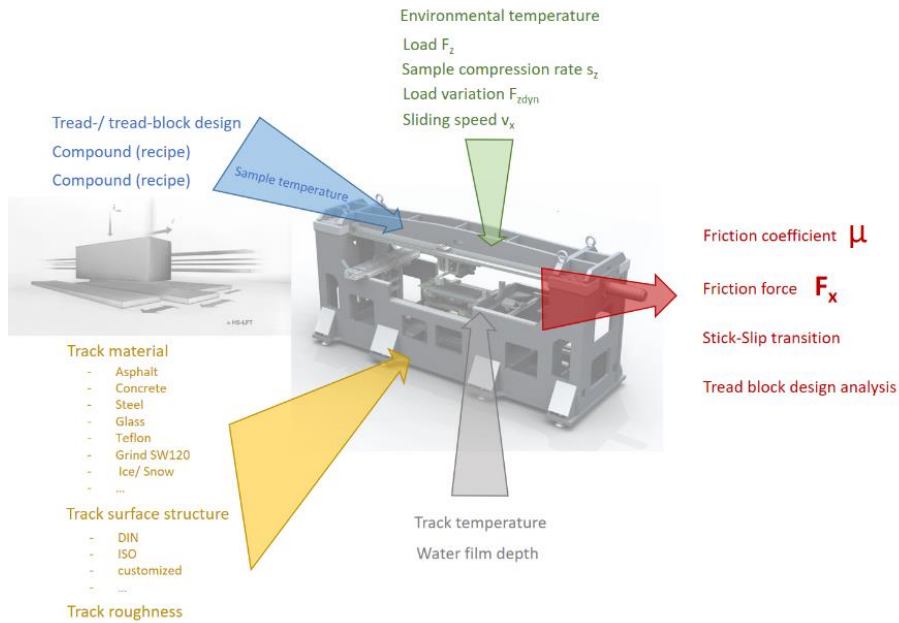
- Determination of friction coefficients of rubber samples
- Any road type/ track surface
- Any operating condition for MC/ PC/ LT/ T&B/ OTR/ Aircraft tire compounds
- Any environmental condition -20°C (-4°F) to +50°C (122°F)
- Full environmental and conditions control
- Top sliding performance F_x 2.500 N (9.000 N peak) / 8 m/s / 100 m/s^2
- Fully controlled hybrid (hydraulic/ pneumatic) high performance loading system F_z max 5.000 N
- Prediction of compound and pattern influences on grip and traction performance
- Tread block analyses with synchronized high Speed camera system
- New developed linear induction motor
- Special technologies to produce ice- and snow tracks
- Hot road track temperatures up to 200°C
- Upgradable for future needs
- Modules automated conditioning and cleaning
- Scanner for tracks and samples for wear (standalone systems)
- Highly cost efficient
- Reference Measurement System for tire industry



A key solution for development engineers

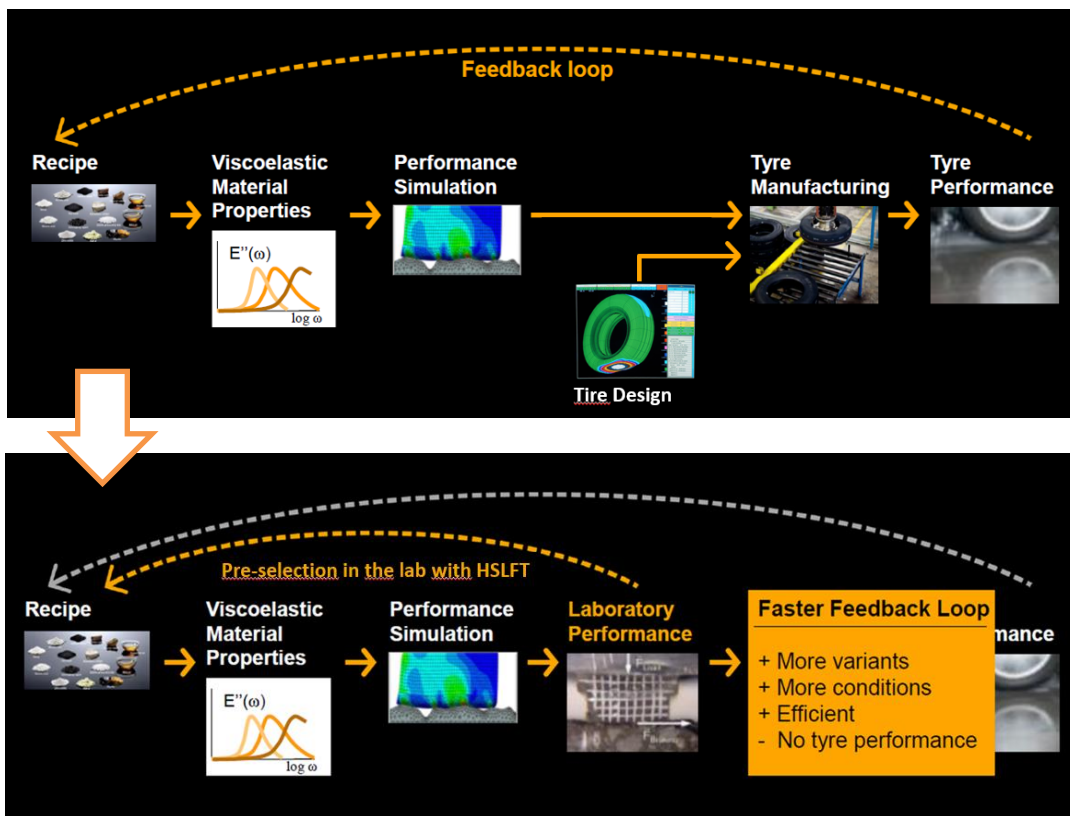
HSLFT is a friction tester, neither for measurement of wear nor abrasion. Friction testing with the HSLFT is a huge step forward in the process of tire development. It reduces development time and cuts the cost by shortening the feedback loop time for friction characteristics measurement and by reducing the number of road tests. HSLFT creates an indoor all-season test environment.

Full parameter control



Cost and efficiency of testing

The High Speed Linear Friction Tester (HSLFT) is the tool to improve the efficiency of the tire development process to keep development cost and effort on a payable level. Reliable material performance data measured in the lab will shorten the feedback-loop to the development specialists and will allow to respond to the multiple development and testing demands which face the tire industries by powerful material pre-selection.



The development process optimization from compound recipe to tire performance

HSLFT Technical Specification

The High Speed Linear Friction Tester is a modular system. These offer different performances for different application areas. Customization with various options is possible. However, performance limits are shown in the table below.

Base machine

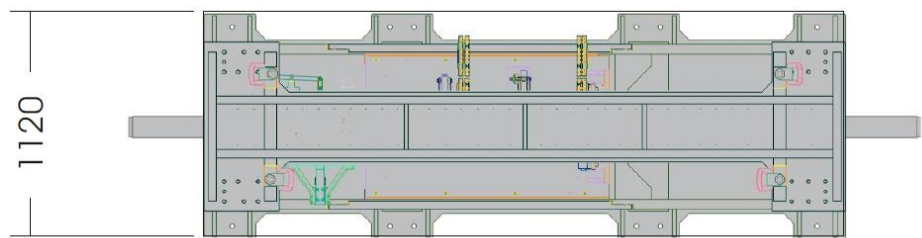
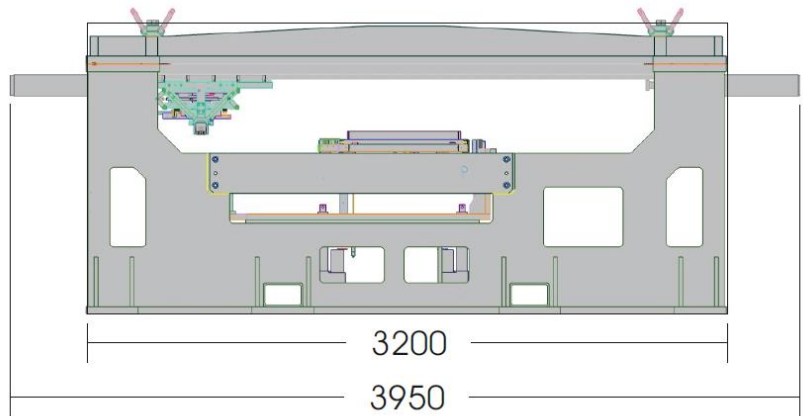
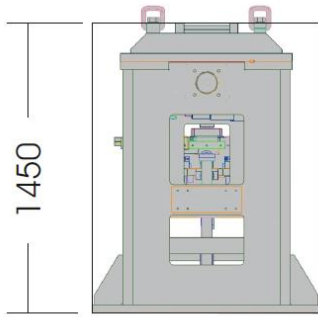
Parameter	Performance	Accuracy
	HSLFT High Perf. hybrid load control	
Longitudinal force F_x	0 ... 9.000 N peak 0 ... 2.500 N continuous	± 0.5 % of set range (1000 / 5000 N)
Lateral force F_y	0 ... 500 N	± 0.5 % of set range (500 / 1000 N)
Vertical force (load) F_z	0 ... 5.000 N	± 0.5 % of set range (1000 / 5000 N)
Sliding distance/ positioning s_x	0 ... 2.200 mm total 0 ... 550 mm testing	0.01 mm
Vertical travel/ positioning s_z	0 ... 18 mm	0.001 mm
Sliding velocity v_x	1 ... 8.000 mm/s	
Loading-/ unloading time	≥ 20 ms	
Longitudinal acceleration a_x	0 ... 100.000 mm/s ²	≤ 5 mm/s ²
Longitudinal track inclination $a(y)$	-3 ... +3°	0.1 % FS
Lateral track inclination $a(x)$	-3 ... +3°	0.1 % FS
Vertical track positioning	180 mm	0,5 % FS
Lateral track positioning	± 200 mm	0,5 % FS
Sample holder rotation angle $a(z)$	0 ... 360°	1° (manual adjustment)
Temperature test room * T_{Test}	5° ... 50°C -20° ... 50°C with Ice&Snow Package	± 1 °C
Temperature snow & ice room * $T_{s\&i}$	-25° ... -5°C	± 1 °C
Sample rate	100 Hz ... 20 kHz	

Wet Track

Water Temperature	RT ... 65°C	± 0.05 °C
Water level	0 ... 50 mm	0,5 mm

RT = room temperature

HSLFT Layout (only base machine)



HSLFT placed in climatic chamber



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