Technical Specifications

NETZSCH

	LFA 467 *HyperFlash*®	LFA 467 *HT HyperFlash*®
Temperature range	-100°C ... 500°C room temperature version available	RT ... 1250°C (furnace temperature 1500°C)
Heating rate (max.)	50 K/min	50 K/min
Furnace cooling device	External chiller (RT… 500°C), Optional: ▪ Liquid nitrogen cooling (-100 … 500°C) ▪ Pressurized air (0°C … 500°C)	External chiller
Thermal diffusivity	0.01 mm^2/s ... 2000 mm^2/s	0.01 mm^2/s ... 2000 mm^2/s
Thermal conductivity	0.1 W/(m·K) ... 4000 W/(m·K)	0.1 W/(m·K) ... 4000 W/(m·K)
Accuracy	▪ Thermal diffusivity[1]: ± 3% ▪ Specific heat[2]: ± 5%	▪ Thermal diffusivity[1]: ± 3% ▪ Specific heat[2]: ± 5%
Repeatability	▪ Thermal diffusivity[1]: ± 2% ▪ Specific heat capacity[2]: ± 3%	▪ Thermal diffusivity[1]: ± 2% ▪ Specific heat capacity[2]: ± 3%
Xenon flash lamp	▪ Pulse energy[3]: up to 10 Joules/pulse (variable), software-controlled ▪ Pulse width[4]: 10 to 1500 µs	▪ Pulse energy[3]: up to 10 Joules/pulse (variable), software-controlled ▪ Pulse width[4]: 10 to 1500 µs
ZoomOptics	Patented (EP2693205, DE102012106955); optimized field of view (optional, requires no mask)	Patented (EP2693205, DE102012106955); optimized field of view (optional, requires no mask)
Pulse mapping	Patented pulse mapping (US7038209, DE10242741), for finite pulse correction and improved c_p determination	Patented pulse mapping (US7038209, DE10242741), for finite pulse correction and improved c_p determination
IR detectors	▪ InSb: RT ... 500°C ▪ MCT: -100°C ... 500°C ▪ Detector refill device (option)	▪ InSb: RT ... 1250°C ▪ Detector refill device (option)
Atmosphere	Inert, oxidizing, static and dynamic	Inert, oxidizing, static and dynamic
Vacuum	< 150 mbar	10^{-4} mbar (with turbo pump)
Data acquisition	2 MHz ▪ Min. measurement time (10 half times) down to 1 ms → for highly conducting and/or thin samples (e.g., Al, Cu plates, thin films, etc.) ▪ Max. measurement time up to 120 s → for low-conducting and/or thick samples (e.g., polymers, refractories, etc.)	2 MHz ▪ Min. measurement time (10 half times) down to 1 ms → for highly conducting and/or thin samples (e.g., Al, Cu plates, thin films, etc.) ▪ Max. measurement time up to 120 s → for low-conducting and/or thick samples (e.g., polymers, refractories, etc.)
Gas control	Frits or optional MFC; measurements under reduced pressure possible	MFC + internal pump
Sample holders	▪ For round and square samples ▪ For liquids, pastes, resins, powders, fibers, laminates, anisotropic samples ▪ For tests under mechanical pressure	For round and square samples
Integrated automatic sample changer	4 insets for up to 4 samples each: ▪ 4x $Ø_{max.}$ 25.4 mm ▪ 16x up to $Ø_{max.}$ 12.7 mm ▪ 16x up to $□_{max.}$ 10 mm	4 insets for 1 sample each: ▪ Ø 12.7 mm ▪ □ 10 mm ▪ Ø 10 mm

1 Accuracy of thermal diffusivity amounts to ±1.5% and repeatability to ±1%, based on 900 tests on Cu (high diffusive) and Pyrex (low diffusive) specimens (dia. 12.7mm, thickness 2.0mm) with at least 3 different devices at room temperature.
2 Accuracy of the specific heat capacity amounts to ± 4% and repeatability to ±2% when using 4 different reference materials, 550 shots, averaging for 5 shots, RT, recommended dimension, recommended shot parameters.
3 Pulse energy limited to 10 J to prevent non-linearity effects due to sample overheating and a detector signal not proportional to the temperature changes. Combining lower pulse energy with high detector sensitivity ensures accurate results.
4 Adjustable in steps of 1 µs