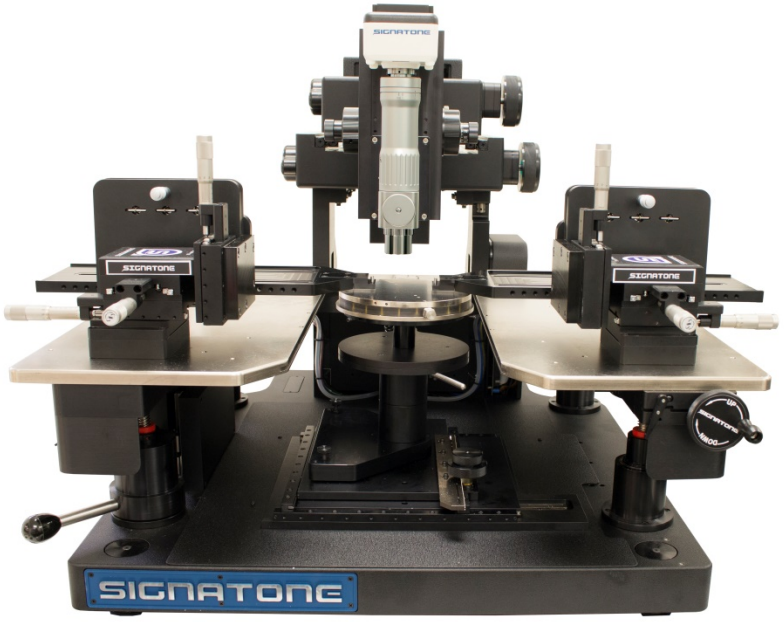
Signatone WL-170-THZ 200 mm Manual Probe System Industry proven probe system designed for reliable and accurate test of mmW, THz, and impedance tuner applications.

❖ FEATURES / BENEFITS

Multi – Use

- Designed for a wide variety of banded, differential or broadband frequency extenders and automated impedance tuners.
- Robust design and seamless integration of extenders/tuners provides a maximum of measurement dynamics



Ergonomics and Optional Configurations

- Ease of use / single-handed X-Y Stage knobs for quick movement plus fine knob control
- Quick platen lift with adjustable platen separation
- Chuck fine rotation and lock
- Large reinforced platen accepts "Large Area Positioners (S-LAP90 and S-LAP-XL)
- Available in multiple configurations including a variety of chuck options, DC/RF/mmW Micro positioners, microscopes, camera's, PCB holders, and more.
- Optional Instrumentation racks, Vibration Isolation tables, Thermal chuck, and more.

❖ SPECIFICATIONS

Chuck XY Stage (Standard)	
Travel range	203 X 203mm (8 x 8 in)
Fine-travel range	12mm x 12mm (0.5" x 0.5")
Fine-travel resolution	<1µm (0.001mm) @ 250µm/rev
Planarity	< 10 µm
Theta travel (Standard)	360°
Theta travel (Fine)	± 6.0°
Theta resolution	1.5 x 10^{-5} gradient
Movement	Coaxial Knob Gear Drive Stage
Chuck to Platen	
Chuck to Platen Separation (Quick Lift)	3.175mm (1/8")
Chuck to Platen Separation (Fine Adjust)	38.1mm (1.5")

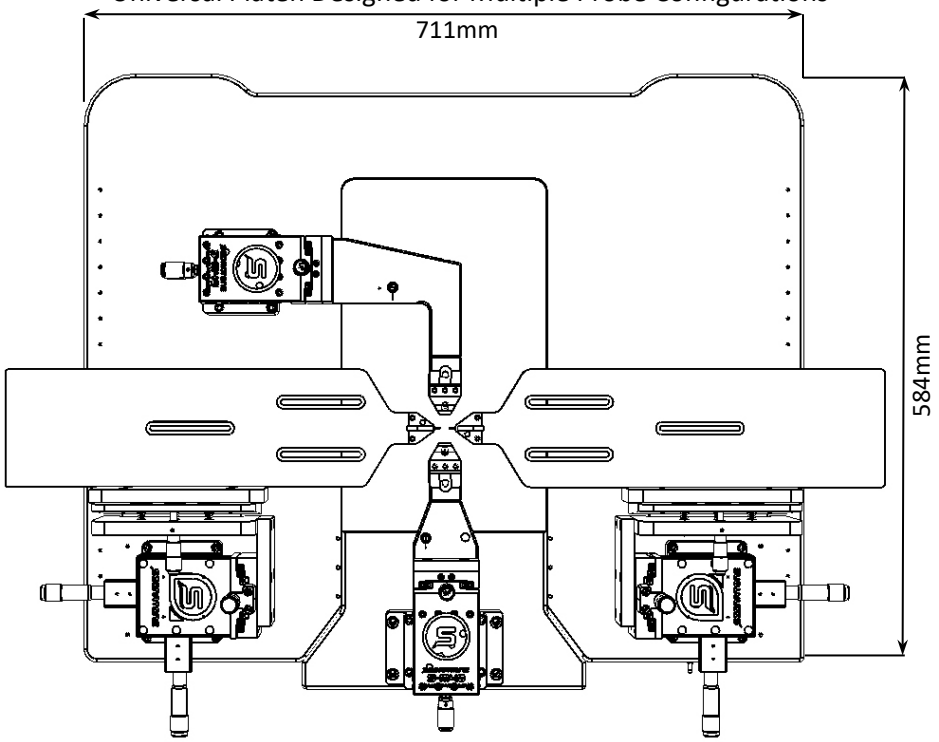
Manual Microscope Stage (Linear)	
Movement range	50 X 50mm (2" x 2")
Resolution	< 2µm (2 X 10-4 mils)
Scope lift	101mm (4 in) vertical Pneumatic (Manual-optional)

PROBE PLATEN

Specifications

Design	Ultra-Stable: Four Post Support
Dimension	Large Area Platen: (See drawings)
Chuck to platen Top	Min. 14.7mm (Variable Separation with Fine Platen Adjust)
Max. No of Micro Positioners	2xmmW E/W + 2x RF N/S and 2 DC or 2 x mmW E/W and 8x DC
Quick Platen Lift Control (CVL)	Continuous Variable Lift (0 to 3.175mm)
Contact Repeatability	< 1 µm (0.04 mils) by Manual Control
mmW MicroPositioner mounting	Bolt Down
RF MicroPositioner mounting	Magnetic or Bolt Down
DC MicroPositioner mounting	Magnetic or Vacuum

Universal Platen Designed for Multiple Probe Configurations

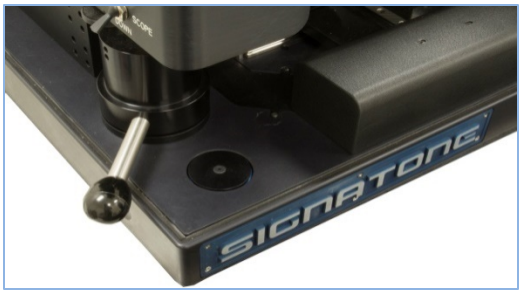


Sample Configured with 2 mmW and 2 RF Probes

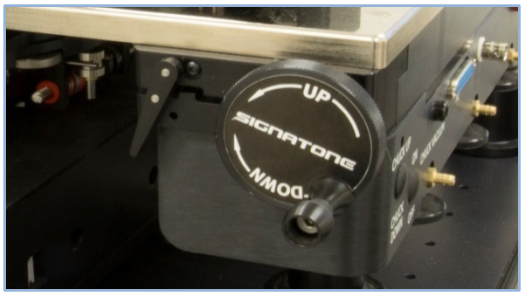
❖ ONE PLATEN x 4 BENFITS

Signatone Multi Benefit Ergonomically Correct Platen Adjust and Features:

- "Quick Lift" with CVL for easy probe to pad separation and alignment
- "Fine Adjust" for Probe card and variable Chucks and DUT thickness setup
- "Position Lock" allows for secure "lock" of user defined platen height setup
- "Thermal Isolation" maintains a safe temperature of probes and platen surface while chuck is at extreme temperatures (optional)

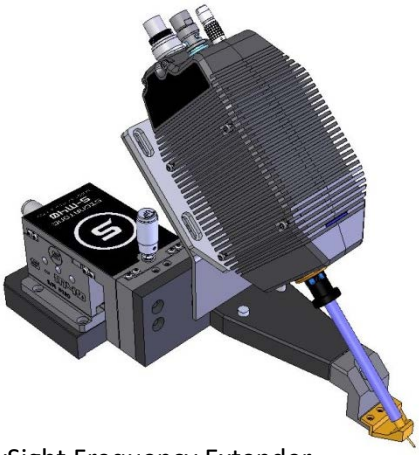


Platen "Quick Lift"

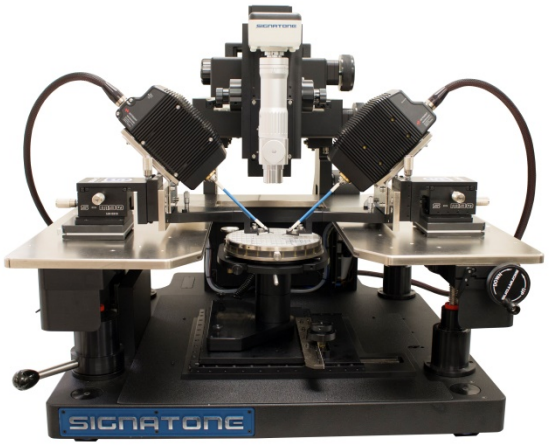


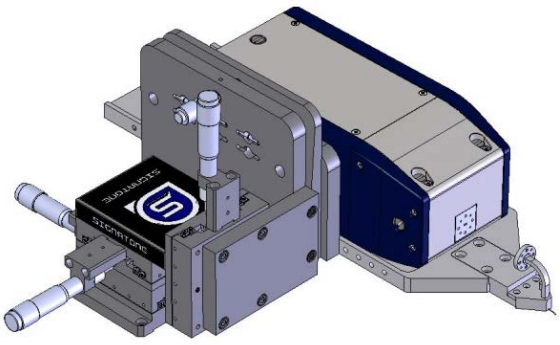
Platen "Fine Adjust" and "Position Lock"

❖ Frequency Extenders - Sample Configurations

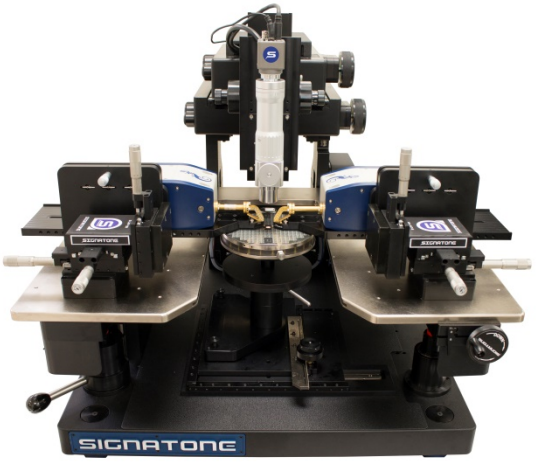


KeySight Frequency Extender
Mounted on S-M40 Positioner

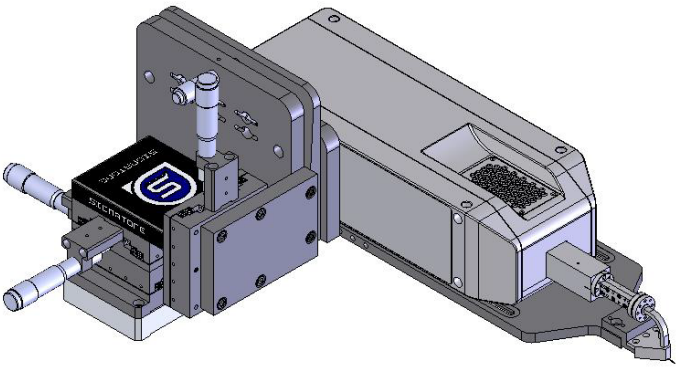


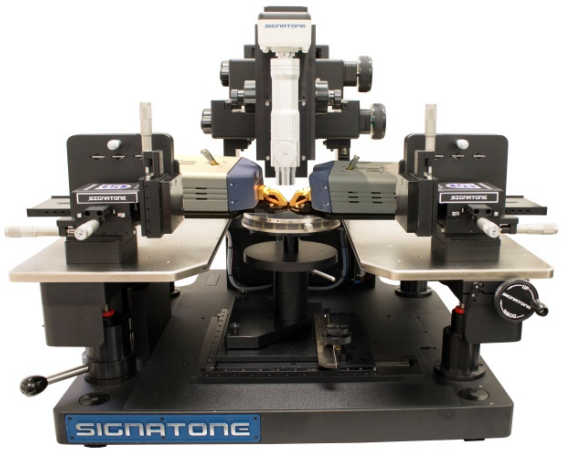


Copper Mountain Technologies Frequency Extender
Mounted on S-LAP90 Positioner

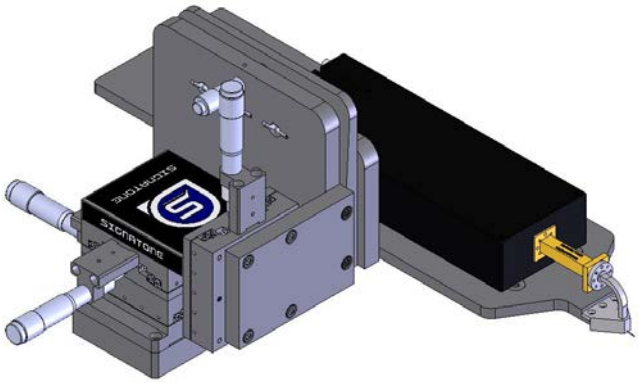


❖ Frequency Extenders - Sample Configurations

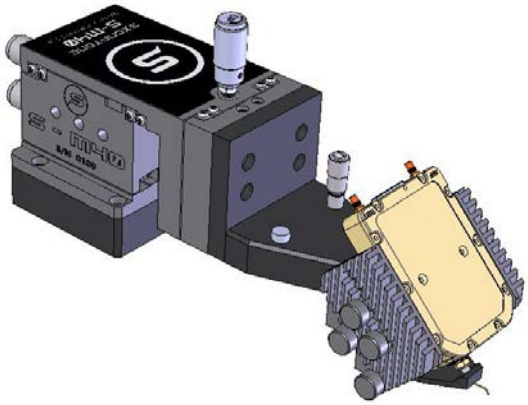


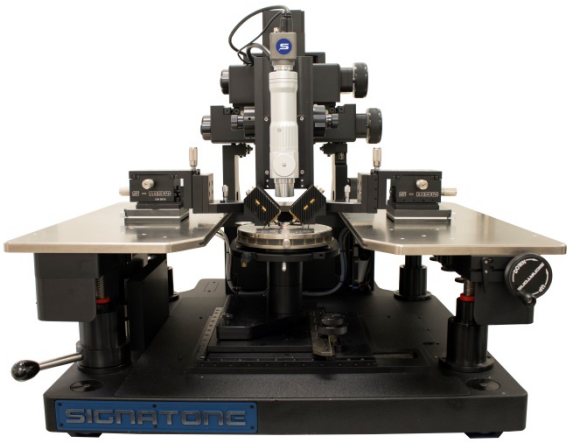


Rohde & Schwarz Frequency Extender
Mounted on S-LAP90 Positioner



Virginia Diodes Inc. (VDI) Frequency Extender
Mounted on S-LAP90 Positioner





ANRITSU Frequency Extender
Mounted on S-M40 Positioner

❖ NON-THERMAL CHUCKS

Standard Wafer Chuck	
Connectivity	Coax BNC (m)
Diameter	203mm
Material	Nickel Plated Brass (gold optional)
Chuck surface	Zone selector knob with Peppered vacuum patterns
Vacuum hole pattern sections(diameter)	22mm, 50mm, 91mm, 135mm, 168mm
Vacuum actuation	Selector Knob allows individual activation of vacuum zones
Supported DUT sizes	25mm, 75mm, 100mm, 150mm, 200mm
Surface planarity	±6.5µ
Rigidity	<3µ / 10N at edge of the chuck

Electrical Specification (Coax)	
Operation voltage	Designed for operation at -200V to + 200VDC
Maximum voltage between chuck top and GND	500 V DC
Isolation	> 150 GΩ

Wafer Chuck (Triaxial)	
Connectivity	Triax (m)
Diameter	203mm
Material	Gold Plated Brass
Chuck surface	Independent Vacuum zones with vacuum rings
Vacuum hole pattern sections(diameter)	0mm, 65mm, 112mm, 162mm
Vacuum actuation	Multi-Zone Adjustable Control
Supported DUT sizes	3mm, 75mm, 125mm, 200mm
Surface planarity	± 5µm
Rigidity	<3µm / 10N near at edge of the chuck

Electrical Specification (Triax)	
Chuck isolation	Measured @ 10V DC
Force to guard	> 2 TΩ
Guard to shield	> 7 TΩ
Force to shield	> 15 TΩ

Auxiliary Chuck	
Quantity	2 AUX chucks
Position	Independently isolated (located on back left and right)
Substrate Size (L x W)	Max 25mm x 25mm (1"x 1")
Material	Ceramic, Ultem, or NI plated brass
Surface Planarity	≤± 5µm
Vacuum Control	Controlled independently, separate from wafer chucks

❖ SIGNATONE THERMAL CHUCKS

Typical Specifications of *Signatone* Thermal Technology

	200mm Standard Hot	200mm Hot/ Triax	200mm Hot/ 3kV Triax
Temperature Range	+25°C to +300°C	+25°C to +200°C	+25°C to +200°C
Connectivity	Coax (m)	Triax (m)	SHV Triax (m)
Temperature control method	Liquid Cooled / Resistance heater	Liquid Cooled / Resistance heater	Liquid Cooled / Resistance heater
Coolant	Water	Water	Water
Smallest temperature selection step	0.1°C	0.1°C	0.1°C
Chuck temperature display resolution	0.01°C	0.01°C	0.01°C
External touchscreen display operation	Yes	Yes	Yes
Temperature stability	±0.1°C	±0.1°C	±0.1°C
Temperature accuracy	±0.5°C	±0.5°C	±0.5°C
Control method	Low noise DC/PID	Low noise DC/PID	Low noise DC/PID
Interfaces	RS232C	RS232C	RS232C
Optional Interfaces	GP-IB	GP-IB	GP-IB
Chuck surface plating	Nickel	Gold	Gold
Temperature sensor	RTD	RTD	RTD
Temperature uniformity	±0.5°C at ≤ 200°C ±1. °C at > 200°C	±0.5°C at ≤ 100°C ±2.5°C at 200°C	±0.5°C at ≤ 100°C ±3.5°C at 200°C
Surface flatness	< ±1 µm	< ±8µm	< ±15µm
Electrical isolation - Coax BNC (m) / SHV Triax	150nA	> 5TΩ	> 5TΩ
Heating Rates	25°C to 300°C < 12 min	25°C to 200°C < 9 min	25°C to 200°C < 28 min
Cooling Rates	300°C to 25°C < 9 min	200°C to 25°C < 8 min	200°C to 25°C < 8 min
Leakage @ 10 V Kelvin Triax	N/A	<25fA	<400fA
Residual Capacitance		<200fF	<1pF
Maximum voltage between chuck top and GND	500V	500V	3kV
3 Safety Circuits	Yes	Yes	Yes
Vacuum Pattern	Rings	Pin hole	Pin hole
Vacuum Zone (DUT Size)	50, 100, 150, 200mm	2, 50, 100, 150, 200mm	2, 50, 100, 150, 200mm

System Controller / Dimensions /Weight / Power Consumption

System Model	W x D x H (mm)	Weight (kg)	Weight (Lbs.)	Power cons. (VA)
S-1080	432 x 483 x 267	20.4	45	2000
TC-II	355 x 711 x 610	50.8	112	1500
2XRC-89HL	559 x 610 x 915	135	297	3700

❖ ERS HIGH POWER THERMAL CHUCKS

Specifications of ERS/ SIGNATONE Technology HV 200mm Chucks

Temperature Range	25°C to 200°C	25°C to 300°C
Connectivity	Kelvin Triax (M),3kV or 10 kV Coaxial	Kelvin Triax (M),3kV or 10 kV Coaxial
Temperature control method	Cooling air / Resistance heater	Cooling air / Resistance heater
Coolant	Air (user supplied)	Air (user supplied)
Smallest temperature selection step	0.1°C	0.1°C
Chuck temperature display resolution	0.01°C	0.01°C
External touchscreen display (optional)	Yes	Yes
Temperature stability	±0.08°C	±0.08°C
Temperature accuracy	±0.1°C	±0.1°C
Control method	Low noise DC/PID	Low noise DC/PID
Interfaces	RS232C	RS232C
Chuck surface plating	Gold plated with pinhole surface	Gold plated with pinhole surface
Temperature sensor	Pt100 1/3DIN 4-line wired	Pt100 1/3DIN 4-line wired
Temperature uniformity	< ±0.5°C at ≤ 200°C	< ±0.5°C at ≤ 300°C
Surface flatness and base parallelism	< ±10 µm	< ±10 µm
Heating and Cooling Rates*	25°C to 200°C <30min 200°C to 25°C <30min	25°C to 300°C <35min 300°C to 25°C <35min
Leakage @ 3000V Kelvin Triax (M)		
25°C	5pA	5pA
200 °C	10pA	10pA
300°C	--	15pA
Leakage @ 10kV Coax UHV/SHV (M)		
25°C	6nA	6nA
200 °C	6nA	6nA
300°C	--	6nA
Maximum voltage between chuck top and GND	10 kV DC	10 kV DC

*All data are relevant for chucks in ECO mode

System Controller / Chiller Dimensions and Power / Air Consumption

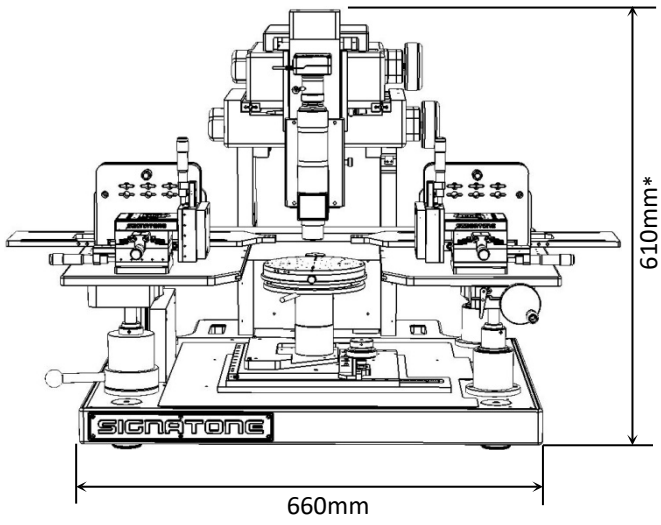
System type	W x D x H (mm)	Weight (kg)	Power cons. (VA)	max. Air flow (l/min)
25 to 200 °C	300 x 360 x 135	12	1300	220
25 to 300 °C	300 x 360 x 135	12	1300	220

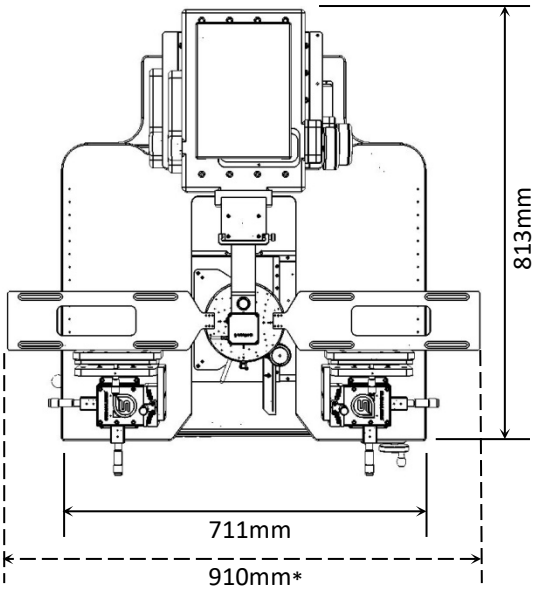
❖ SYSTEM DIMENSIONS INCLUDING TABLE

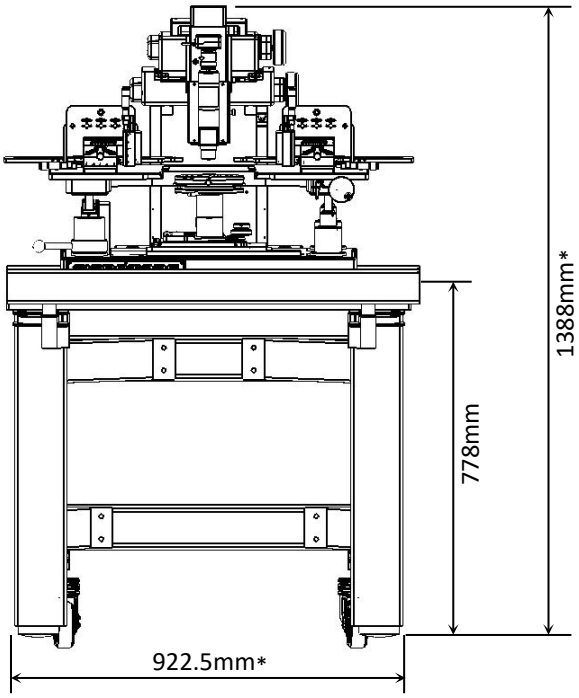
WL-170 THZ / including microscope*

Dimensions (L x D x H)	660 x 813 x 610mm	(26 x 32 x 24")
Weight	100 kg	(220.46 lbs.)

** Can very dependent on monitor, frequency extender, shelf, and microscope selection*







WARRANTY

- Standard Warranty 12 months *
- For Extended Warranty and Service Contracts : Contact Signatone Corp. for more information

**** See Signatone Corporate Terms and Conditions of Sale for further details.***

- **North America:** Sales.NA@signatone.com
- **Europe:** Sales.Europe@signatone.com
- **Asia:** Sales.Asia@signatone.com