

ramé-hart Model 590

Contact Angle Goniometer and Tensiometer



Measure

Contact angle

Surface energy

Surface tension

Interfacial tension

The Model 590 bundles the Model 500 bench with the Automated Dispensing System and Automated Tilting Base at a reduced price. It provides repeatable precision drop formation, advancing and receding contact angle, contact angle hysteresis, and roll-off angle. Its extra-long bench supports oversized samples and larger accessories such as the Advanced Chamber. DROPimage Advanced supports dynamic studies and in-software control for included and other automated accessories.

DROPimage Advanced

Powerful Advanced Analysis

All-New U6 Camera

High-Resolution, High-Speed

Automated System

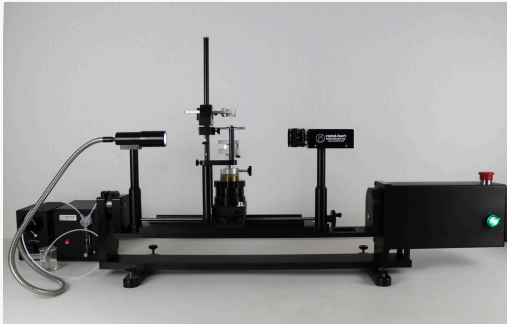
Software-Controlled Tilting and Dispensing

Included as standard - not optional add-ons

This instrument includes both the Automated Dispensing System and the Automated Tilting Base. See the [Automated Dispensing System brochure](#) and the [Automated Tilting Base brochure](#) for complete accessory specifications.

Instrument Specifications

Specification	Details
Model Number	590-U6
Surface Characteristics	Contact angle, surface energy, surface tension, and interfacial tension
Stage	Advanced 3-axis stage with fine adjustment
Stage Size	51 x 76 mm (2.01 x 2.99 in)
Backlight Illumination	LED Fiber Optic Illuminator
Pre-Installed Software	DROPImage Advanced
Power Supply	110 - 240 VAC, 50-60 Hz
Instrument Dimensions	616 x 267 x 508 mm (24.25 x 10.51 x 20.00 in)
Instrument Weight	6.10 kg
Warranty	One-year warranty included with every instrument. Extended warranties can be purchased upon request



A complete turn-key system

Supplied with a PC, pre-installed and configured software, and the components and tools needed to set up and operate the instrument.

Camera Specifications

U6 Camera Standard - included

Specification	Details
Camera Resolution	1920 × 1200 pixels (2.3 MP)
Maximum Camera Frame Rate	2320 frames per second
Default Camera Frame Rate (full window)	160 frames per second
Sensor Format	1/2.3-inch
Pixel Bits	Mono 8-bit
Pixel Bits (maximum)	Mono 12-bit
Camera Interface/Power Supply	USB 3.0
Signal-to-Noise at 541 nm	40.2 dB
Dark Noise at 541 nm	2.5 electrons

U4 Camera Optional - available upon request

Specification	Details
Camera Resolution	720 × 540 pixels (0.3 MP)
Maximum Camera Frame Rate	5400 frames per second
Default Camera Frame Rate (full window)	520 frames per second
Sensor Format	1/2.9-inch
Pixel Bits	Mono 8-bit
Pixel Bits (maximum)	Mono 12-bit
Camera Interface/Power Supply	USB 3.0
Signal-to-Noise at 541 nm	43.1 dB
Dark Noise at 541 nm	2.9 electrons

Software Capabilities

Capability	Details
Software Included	DROPImage Advanced
Supported Operating Systems	Windows 11
Software Licensing	Pre-installed software comes perpetually licensed to your organization and includes one year of upgrades and priority support
Static Contact Angle Range	0-180 deg
Contact Angle Accuracy	+/-0.1 deg
Contact Angle Resolution	+/-0.1 deg
Continuous Reporting	Supported for contact angle and surface tension measurements
Surface Energy Tools	Owens-Wendt Geometric-Mean, Wu Harmonic-Mean, Rabel Multi-Liquid, Kwok One-Liquid, van Oss Acid-Base, Schultz Solid-Liquid-Liquid, Work of Adhesion, and Zisman's Plot
Surface Tension Support	Measures both surface tension and interfacial tension
Surface Tension Range	0.01-2500 mN/m
Surface Tension Accuracy	+/-0.01 mN/m
Dynamic Study Tools	Dynamic Method Wizard, Video Replay, Recalculation, and Oscillations
Reporting Tools	Plotting and report generation supported
Accessory Controls	In-software control for dispensing, tilting, temperature, and oscillation
Advanced Contact Angle Measurement Features	Curved baseline, multiple analysis functions, and automated charting

Requires installation of camera driver, which is included with software.

Automated accessory control requires the corresponding compatible hardware. Unless listed as included, accessories are available separately.

Accessory Compatibility

Choose compatible accessories to suit your application.

Accessory	Part Number	Compatibility	Description
Automated Dispensing System	100-22	Included	In-software dispensing control supported
Automated Tilting Base	100-25-A	Included	Motorized tilting base for automated advancing and receding angle studies
Environmental Fixture	100-14	Yes	Supported fixture for ambient environmental protection and liquid/liquid studies
Rotating Wafer Support	100-21	Yes	Rotating wafer support up to a 13.625" diameter
Peltier Environmental Chamber	100-30	Yes	Supported chamber for controlled temperature experiments from -50°C to 150°C
Heated Environmental Cell	100-33	Yes	Supported enclosure for controlled temperature experiments from ambient to 300°C
Hot Plate	100-33-HP	Yes	Supported heating plate for controlled temperature experiments from ambient to 300°C
Overhead Optical Imaging Kit	100-31	Yes	Adds overhead imaging capability for top-down droplet observation and analysis
Oscillator	100-28	Yes	Oscillating accessory for dynamic droplet experiments and advanced interfacial studies
750 FPS SuperSpeed Upgrade Kit	100-12-U2	Yes	Upgrade kit for higher-speed image capture at up to 750 frames per second
Vacuum Chuck Support	100-21-VC	Yes	Vacuum chuck support with 6" or 8" diameter options available
Manual Tilting Base	100-25-M	Yes	Supported for advancing and receding angles, roll-off angle, and contact angle hysteresis

Accessories are optional unless specifically identified as included. Software upgrades or additional hardware may be required as noted.

Included as standard - not optional add-ons

This instrument includes both the Automated Dispensing System and the Automated Tilting Base. See the [Automated Dispensing System brochure](#) and the [Automated Tilting Base brochure](#) for complete accessory specifications.

What's Included

Every system is supplied ready for installation and first-time setup.

• 21-inch Optical Bench	• U6 Camera (standard)
• Advanced 3-Axis Stage	• Leveling Specimen Stage
• Fiber Optic Illuminator	• Stage Shade
• Manual Syringe Assembly	• Automated Dispensing System
• Automated Tilting Base	• PC with Pre-installed Software
• DROPimage Advanced	• User Manual
• Calibration Tool	• Storage Cover
• All Necessary Cables and Setup Tools	

Included as standard - not optional add-ons

This instrument includes both the Automated Dispensing System and the Automated Tilting Base. See the [Automated Dispensing System brochure](#) and the [Automated Tilting Base brochure](#) for complete accessory specifications.

Configuration, compatible accessories, and software upgrades can be discussed with our sales team.

Contact ramé-hart instrument co.

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