ALPHATECHNOLOGIES

ABOUT

Alpha Technologies

The world leader in design and manufacturing of instruments and software that delivers advanced precision rubber and elastomeric materials analysis for production optimization and product compliance solutions.

Alpha Technologies, a Roper Technologies company (NYSE: ROP) is dedicated to working closely with clients and industries to improve and enable performance, value, and safety to consumers. As the recognized leader in rubber and polymer rheology testing, Alpha continues to innovate and advance with best in class testing solutions.

ISO 9001-registered and ISO 17025-accredited, Alpha Technologies' instruments measure the dynamic, physical and process-ability characteristics of rubber and polymers. Alpha Technologies product lines include Material Process Analyzers, Rheometer, Viscometers, Dispersion Analysis, Density and Hardness Testers, Physical Property Testers, Universal Testers, Sample Cutters, and Laboratory Information Management Systems.

Headquartered in Hudson, Ohio, USA, Alpha is staffed with highly trained professionals from around the world that are ready to assist clients in achieving their goals.

CONTENTS

alpha-technologies.com

Enterprise

Enhanced Data Management Solutions

Quality management software solution providing precise analytics to help increase production, ensure consistency, and enable better decision making.

Designed to work and grow with any laboratory or production environment, Enterprise ensures data is available, organized and reportable from a single instrument to many instruments in a multi-site worldwide operation.

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Enterprise

Enhanced Data Management Solutions

Features

- SQL database with open data table design
- Standard user interface for ease of use
- Online Manager for test configuration, constructing business rules, defining reports and specification management
- Statistical analysis to transform data into real-time actionable quality information
- Standardized instrument Workbench interface for data acquisition from each specific instrument
- Custom report designer
- Pass/Fail control provides multiple trend-warning levels with high visibility pass/fail message display

Performance

- Interface provides easy operation by production staff.
- Design control plans that automatically schedule tests
- Embedded views and integrated reporting and analytical options that can be deployed and securely accessed as needed by the appropriate user security levels. The variety of options ensures that Enterprise will provide the most versatile and flexible reporting options plus integrative options for reporting with applications you have already invested in.
- Integration with external systems reducing or eliminating manual data entry

Options

- Remote Viewer allows remote access to the Enterprise database across the network
- Process Manager allows business rules to be automated and enforced for workflow management
- Compound manages compound, recipe formulation and ingredient information
- Workorder creates a managed R&D test environment

Specifications

Minimum Workbench/Standalone Computer Specifications

- 1 GHz Intel i3 processor minimum or equivalent
- 4GB or more RAM memory
- 40 GB of free HDD space
- Operating System: one of:
  - Windows Vista SP2 or newer (Business Edition or higher) (x86 and x64)
  - Windows 7 SP1 or newer (Professional Edition or higher) (x86 and x64)
  - Windows 8/8.1 (Professional or higher) (x86 and x64)
- Monitor: 1024 x 768 or higher resolution and 256 Color Palette
- TCP/IP networking
- Microsoft IIS 7.0, 7.5, 8, 8.5, (Standalone only)
- Microsoft Internet Explorer 10 or newer

Minimum Enterprise Network Server Specifications

- 1 GHz Intel i5 processor minimum or equivalent
- 8GB or more RAM memory
- 100 GB of free HDD space
- Operating System: one of:
  - Windows Server 2008 R2 or newer (x64)
  - Windows Server 2012 or newer (x64)
  - Windows Server 2012 R2 or newer (x64)
- Make sure the latest critical and important Windows Updates are installed
- Microsoft SQL Server: one of:
  - Microsoft SQL Server 2008 R2 SP3 or newer
  - Microsoft SQL Server 2012 SP2 or newer
  - Microsoft SQL Server 2014 SP1 or newer
- TCP/IP networking
- Microsoft IIS 7.5, 8, 8.5

PREMIER™ RPA

Rubber Process Analyzer

Measures dynamic properties of raw elastomers or mixed rubber before, during and/or after cure. Performs cure, temperature sweep, frequency sweep, and stress relaxation tests.

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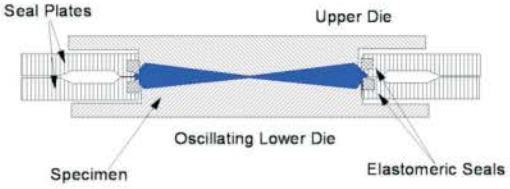
PREMIER™ RPA

Rubber Process Analyzer

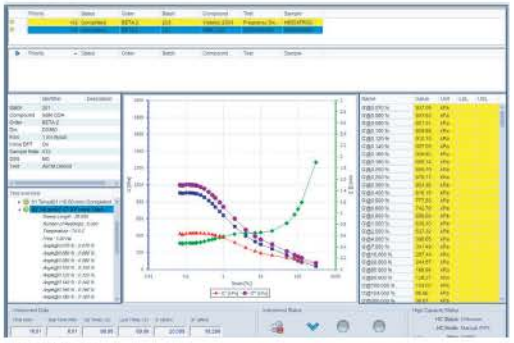
Features

- NIST traceable standards ensure excellent reproducibility worldwide
- Pressure transducer standard to provide pressure measurement in addition to torque
- Proprietary electronics produce stable measurements over a wide range of torque values
- Measure dynamic properties of rubber before cure, during cure, and after cure
- Sealed biconical dies
- Advanced Fourier Transform Rheology tests, including but not limited to Long Chain Branching determination
- Operates using Enterprise software, a flexible LIMS system based on an open SQL database platform



Performance

- DYNAMIC SYMMETRY™ - A system that ensures parallel die closing, reducing variation
- SMART ALIGNMENT™ - A system that ensures excellent die cavity sealing for better repeatability
- Enhanced data sampling and processing using up to 64x faster data rate per cycle
- Up to 80 unique sub tests within a single test configuration
- Pre-strain setting for frequency and strain sweeps
- Improved sensitivity to mixing errors and/or compound changes



ASTM D8059 Test

Options

- Automation (5, 10 , or 112 samples)
- Constant volume sample cutter
- Wide Assortment of films for different applications
- Multiple languages available

Specifications

FREQUENCY:	0.1 to 3000 cpm (0.0016 to 50 Hz)
TEMPERATURE RANGE:	Ambient to 446°F (230°C)
MAX RAMP RATE:	33.8°F/s (1°C/s)
MAX COOL RATE:	32.9°F/s (0.5°C/s)
STRAIN:	±0.07% to ±1255% (±0.005 to ±90 degrees)
MEASURED DATA:	Torque, temperature, frequency, strain, pressure, and angle
CALCULATED DATA:	G′, G″, G*, J′, J″, J*, S′, S″, S*, tanδ, η′, η″, and η*
TESTING STANDARDS:	Meets ASTM D5289, D6048, D6204, D6601, D7050, D7605, and D8059
REPORTS AND EXPORT FILES:	Numerous formats including text and Microsoft Excel © files
ELECTRICAL:	100/110/120/130 VAC ±10%, 60 ±3 Hz,15-amp single phase
	200/220/240/160 VAC ±10%, 50 ±3 Hz, 7.5-amp single phase
AIR PRESSURE:	80 psi (5.6 kg/cm 550 kPa) minimum
DIMENSIONS:	W: 22 in (56 cm), D: 25 in (64 cm), H: 45 in (122 cm)
WEIGHT:	Net 346 lb (157 kg), gross 547 lb (248 kg)

PREMIER™ RPA+

Rubber Process Analyzer Plus

Measures dynamic properties of raw elastomers or mixed rubber before, during and/or after cure. The Premier™ RPA+ is equipped with Alpha's patent-pending PDM™ (Precision Dynamic Modulus™) system for advanced RPA testing.

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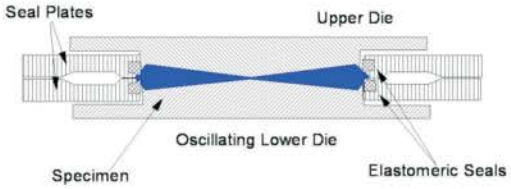
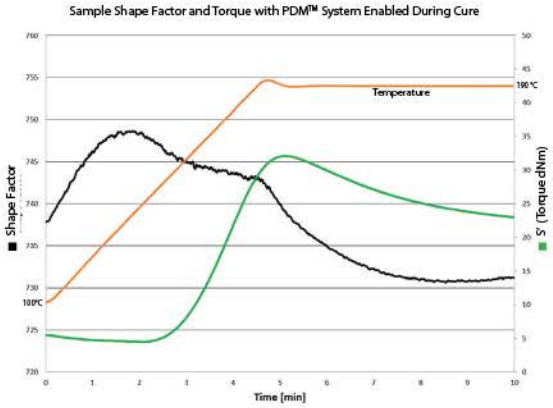
PREMIER™ RPA+

Rubber Process Analyzer Plus

Features

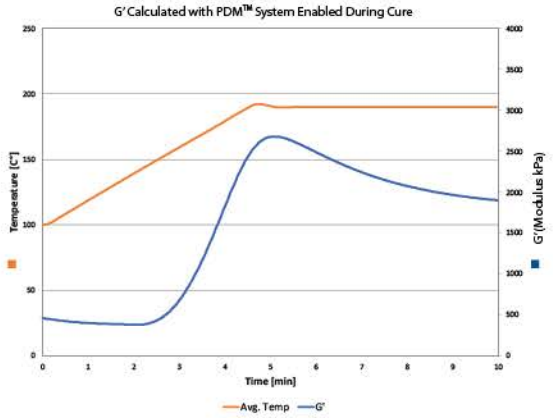
- Precision Dynamic Modulus™ (PDM™) system with reduces sample slippage
- Advanced Fourier Transform Rheology tests, including but not limited to long chain branching (LCB) determination
- NIST traceable standards ensure excellent reproducibility worldwide
- Pressure transducer standard to provide pressure measurement in addition to torque
- Advanced Fourier Transform Rheology tests, including but not limited to Long Chain Branching determination
- Operates using Enterprise software, a flexible LIMS system based on an open SQL database platform





Performance

- DYNAMIC SYMMETRY™ - A system that ensures dies remain parallel to reduce variation
- SMART ALIGNMENT™ - A system that ensures excellent die cavity sealing for better repeatability
- Most accurate strain control
- Eliminates errors in modulus calculations when sample thickness deviates from the nominal value
- Characterize raw polymers
- Excellent test sensitivity to mixing errors or compound changes
- Suitable for quality control or research and development
- Improved reproducibility of modulus and tan delta results after cure



Options

- Automation (5, 10, or 112 samples)
- Constant volume sample cutter
- Wide Assortment of films for different applications
- Multiple languages available

Specifications

FREQUENCY:	0.1 to 3000 cpm (0.0016 to 50 Hz)	TESTING STANDARDS:	Meets ASTM D5289, D6048, D6204, D6601, D7050, D7605, and D8059
TEMPERATURE RANGE:	Ambient to 446°F (230°C)	REPORTS AND EXPORT FILES:	Numerous formats including text and Microsoft Excel © files
MAX RAMP RATE:	33.8°F/sec (1°C/sec)	ELECTRICAL:	100/110/120/130 VAC ±10%, 60 ±3 Hz,10-amp single phase
MAX COOL RATE:	32.9°F/sec (0.5°C/sec)		200/220/240/260 VAC ±10%, 50 ±3 Hz,5-amp single phase
STRAIN:	±0.07% to ±1255% (±0.005 to ±90 degrees)	AIR PRESSURE:	80 psi (5.6 kg/cm2551 kPa) minimum
MEASURED DATA:	Torque, temperature, frequency, strain, pressure, and angle	DIMENSIONS:	W: 22 in (68 cm), H: 48 in (132 cm), D: 25 in (76 cm)
		WEIGHT:	Net 346 lb (177 kg), gross 616 lb (280 kg)
CALCULATED DATA:	G', G'', G*, J', J'', J*, S', S'', S*, tanδ, η', η'', and η*		

PREMIER™ MDR

Moving Die Rheometer

The MDR that's driving the next generation of testing – delivering data with the highest consistency and long term stability of all moving die rheometers.

The Premier™ MDR is built for optimum performance in both laboratory and production environments, the Premier™ MDR's stream-lined design includes an LED back-lit logo for test status indication, a wrap-around front cover and shield for ease of use and access, a touch-screen user interface, and a built-in storage drawer.

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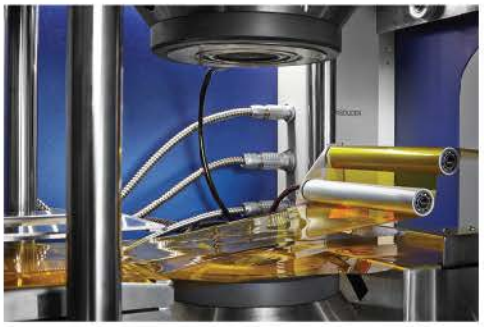
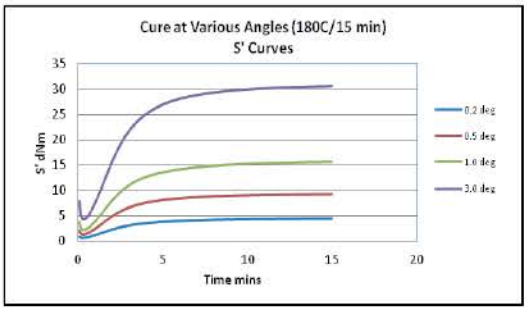
PREMIER™ MDR

Moving Die Rheometer





Features

- Versatile LCD touch screen and user interface
- Smaller instrument footprint for effective use of bench space
- Biconical cruciform-less dies with optimized groove profiles to reduce slippage and improve performance with stiffer stocks
- Uniquely designed heater provides reduced temperature gradients and improved temperature recovery
- Improved forced air die cooling with independent control to the upper and lower dies provides rapid temperature changes for better non-isothermal control
- Pressure transducer to provide both torque and pressure measurements included as standard
- Operates using Enterprise software, a flexible LIMS system based on an open SQL database platform

Performance

- Unsurpassed test repeatability and reproducibility
- DYNAMIC SYMMETRY™ - A system that ensures parallel die closing, reducing variation
- SMART ALIGNMENT™ - A system that ensures excellent die cavity sealing for better repeatability
- SMART SEAL™ - An optional upper die assembly to eliminate the conventional elastomeric seal while maintaining a closed, pressurized cavity for improved long-term data stability and reduced need for torque calibrations (Lower Die Long Life Seal – Standard)
- RAPID CHANGE™ - An optional adjustable eccentric option that allows simple and fast oscillation angle changes without the need for re-calibration (0.5 degrees arc is standard)

Options

- Oscillation amplitudes of 0.2, 1.0, 3.0, and 7.17 degrees arc mechanically set
- Automation (5, 10 , or 112 samples)
- Constant volume sample cutter
- Film to protect dies and seals from contamination and wear
- Multiple languages available

Specifications

FREQUENCY:	100 cpm (1.67 Hz)
TEMPERATURE RANGE:	Ambient to 446°F (230°C)
STRAIN:	0.5 Standard (7%); 0.2, 1.0, 3.0 and 7.17 degrees (2.8%, 14%, 42% or 100%) available
ONBOARD:	ML, MH,MH-ML, Ts1, Ts2, T10, T50, T90, S" at ML, S" at MH, TD at ML, TD at MH, Max Cure Rate, Time at Max Cure Rate, Pressure point PH-PL and pressure time points
TESTING STANDARDS:	Meets ASTM D5289, ISO6502, and DIN 53529
ELECTRICAL:	100/110/120/130 VAC+/- 10%, 60 +/- 3Hz, 10amp, single phase
	200,220,240,260 VAC +/-10%, 50Hz +/- 3amp single phase
AIR PRESSURE:	60 psi (414Kpa, 4.2 kg/cm2) minimum
DIMENSIONS:	W: 22 in (56 cm), D: 26 in (66 cm), H: 48 in (122 cm)
WEIGHT:	346 lb (157kg) approx
LCD TOUCH SCREEN:	155mm x 85mm, resolution 800 x 480

MDR-C®

Compact Moving Die Rheometer

A rheometer designed for simplicity and value, the MDR-C is effective in simple production batch control, cure time setting, and compound evaluation.

As Alpha's entry level moving die rheometer, the MDR-C® provides cure testing for general rubber applications. The MDR-C®'s smaller footprint allows for more effective use of bench space, while its LCD touch screen and user interface provides convenient stand-alone operation.

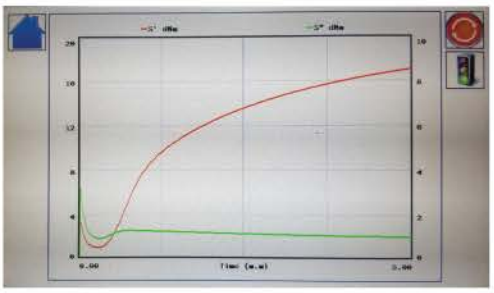
ALPHATECHNOLOGIES

MDR-C®

Compact Moving Die Rheometer

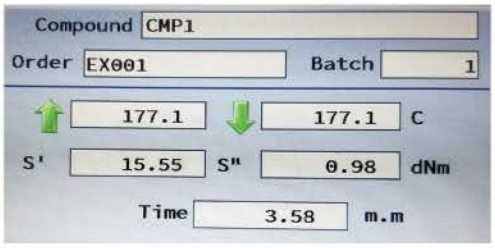
Features

- Cost effective cure testing for general rubber applications
- Sealed biconical dies
- Does not require a PC or printer to run tests
- Versatile LCD touch screen and user interface
- Simple sample loading and unloading due to open design
- Smaller instrument footprint for effective use of bench space



Performance

- Rotorless design for reduced test time and faster temperature recovery
- Excellent repeatability
- Measure cure under nearly true isothermal conditions
- Excellent test sensitivity to mixing errors
- Limited operator influence
- Suitable for quality control



Options

- Pressure measurement option available
- Cure and pressure curves can be collected simultaneously
- Enterprise software for handling historical data - provides user definable datapoints for time, temperature and torque @ time
- Constant volume sample cutter
- Film to protect dies and seals from contamination and wear
- Multiple languages available

Specifications

FREQUENCY:	100 cpm (1.67 Hz)
TEMPERATURE RANGE:	Ambient to 392°F (200°C)
STRAIN:	0.5 Standard (7%); 0.2, 1.0 or 3.0 degrees available (2.8%, 14% or 42%)
STANDARD DATAPOINTS:	ML, MH,MH-ML, Ts1, Ts2, T10, T50, T90, S"at ML, MH, TD at ML, MH, Max Cure Rate, Time at Max Cure Rate
LCD Touch Screen:	155mm x 85mm, Resolution 800 x 480
TESTING STANDARDS:	Meets ASTM D5289 and ISO6502
ELECTRICAL:	110-120VAC/60Hz (10amp) single phase 220-240VAC/50Hz (5amp) single phase
AIR PRESSURE:	70 psi (483Kpa, 5.0 kg/cm2) minimum
DIMENSIONS:	W: 20 in, D: 20 in, H: 47 in (W: 50.8 cm, D: 50.8 cm, H: 119.4 cm)
WEIGHT:	260 lb (118kg) approx

PREMIER™ MV

Mooney Viscometer

Designed to test raw elastomers or mixed rubber, the Premier™ MV measures viscosity, scorch and stress relaxation.

With an all-new compact design, the Premier™ MV features multi-zone stress relaxation data analysis as well as up to a 45% reduction in die cooling time in comparison to previous models. These updates, along with the new user interface, keep the Premier™ MV at the forefront of viscometers on the market today.

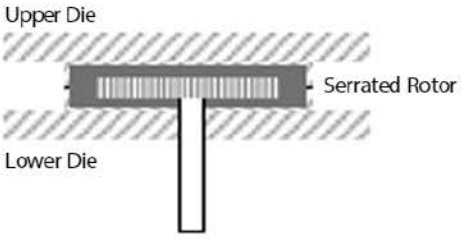
ALPHATECHNOLOGIES

PREMIER™ MV

Mooney Viscometer

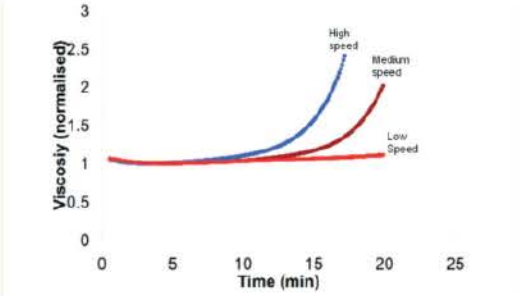
Features

- Standard variable speed digital motor
- Multi-zone stress relaxation data analysis
- Up to 45% reduction in die cooling time
- Automatic dead weight calibration
- Rotor detection feature prevents rotor damage
- Small and Large Rotors Included
- Compact Design with integrated storage drawer



Performance

- Low mass dies and proprietary digital temperature control provide superb temperature stability
- Excellent repeatable and reproducible data
- Instrument specifications exceed ASTM requirements
- DYNAMIC SYMMETRY™ - A system that ensures parallel die closing, reducing variation
- SMART ALIGNMENT™ - A system that ensures excellent die cavity sealing for better repeatability



Options

- Constant volume sample cutter
- Long Life rotor seal
- Multiple languages available

Specifications

Testing Standards:	ASTM D1646 and D3346
Temperature:	Ambient to 392°F (200°C)
Rotation:	0.01 to 20 RPM
Electrical:	100/110/120/130 VAC ±10%, 50/60 ±3 Hz,10-amp single phase
	200/220/240/260 VAC ±10%, 50/60 ±3 Hz, 5-amp single phase
Air Pressure:	60 psi (4.2 kg/cm2 414 kPa) Minimum
Dimensions:	W: 22 in (56 cm), D: 26 in (66 cm), H: 48 in (122 cm)
Weight:	Net 159 kg (350 lb)
LCD Touch Screen:	155mm x 85mm, resolution 800 x 480

RPA-X™

Rubber Process Analyzer

The new X-Series™ instruments are Alpha Technologies' modular production floor solution for customers who are looking to bring testing closer to the production line.

The RPA-X™ brings Alpha's superior testing solutions to the production floor with a mobile design that easily connects to any X-Dock™ station. The "X" in the RPA-X™ brand name stands for "cross-over" from lab environment to production floor. These test instruments are based on Alpha's flagship Premier™ technologies with the same outstanding reproducibility, repeatability, and test sensitivity.

ALPHATECHNOLOGIES

RPA-X™

Rubber Process Analyzer

Features

- Adaptable for lab and production floor use
- Auto module docking identification
- Sealed design for production floor environments
- NIST traceable standards ensure excellent reproducibility worldwide
- Pressure transducer standard to provide pressure measurement in addition to torque
- Proprietary electronics produce stable measurements over a wide range of torque values
- Measure dynamic properties of rubber before cure, during cure and after cure
- Sealed biconical dies
- Advanced Fourier Transform Rheology tests, including but not limited to Long Chain Branching determination
- Operates using Enterprise software, a flexible LIMS system based on an open SQL database platform

Performance

- DYNAMIC SYMMETRY™ - A system that ensures dies remain parallel to reduce variation
- SMART ALIGNMENT™ - A system that ensures excellent die cavity sealing for better repeatability
- Measure dynamic properties of rubber before cure, during cure and after cure
- Runs tests under controlled stress
- Advanced precision strain control
- Incorporates Alpha's leading reproducibility, test sensitivity, and repeatability standards
- Enhanced data sampling and processing using up to 64x faster data rate per cycle
- Up to 80 unique sub tests within a single test configuration
- Pre-strain setting for frequency and strain sweeps
- Improved sensitivity to mixing errors and/or compound changes

Options

- High temperature dies available up to 350°C
- Multiple film types available

Specifications

FREQUENCY:	0.1 to 3000cpm (0.0016 to 50 Hz)
TEMPERATURE RANGE:	Ambient to 446°F (230°C)
MAX RAMP RATE:	33.8°F/sec (1°C/sec)
MAX COOL RATE:	32.9°F/sec (0.5°C/sec)
STRAIN:	±0.07% to ±1255% (±0.005 to ±90 degrees)
MEASURED DATA:	Torque, temperature, frequency, strain, pressure, and angle
COLLECTED DATA:	G', G", G*, J', J", J*, S', S", S*, tanδ, η', η", and η

TESTING STANDARDS:	Meets ASTM D5289, D6048, D6204, D6601, D7050, D7605, and D8059
ELECTRICAL:	100/110/115/120 VAC - 50/60 Hz single phase
	200/220/240/260 VAC - 50/60 Hz single phase
AIR PRESSURE:	60 psi (413Kpa, 4.2kg/cm²) minimum 120 psi (827Kpa, 8.4kg/cm²) maximum
DIMENSIONS:	W: 19.7 in (50 cm), D: 23.6 in (56.9 cm), H: 57.4 in (145 cm)

MDR-X™

Moving Die Rheometer

The new X-Series™ instruments are Alpha Technologies' modular production floor solution for customers who are looking to bring testing closer to the production line.

The MDR-X™ brings Alpha's superior testing solutions to the production floor with a mobile design that easily connects to any X-Dock™ station. The "X" in the MDR-X™ brand name stands for "cross-over" from lab environment to production floor. These test instruments are based on Alpha's flagship Premier™ technologies with the same outstanding reproducibility, repeatability, and test sensitivity.

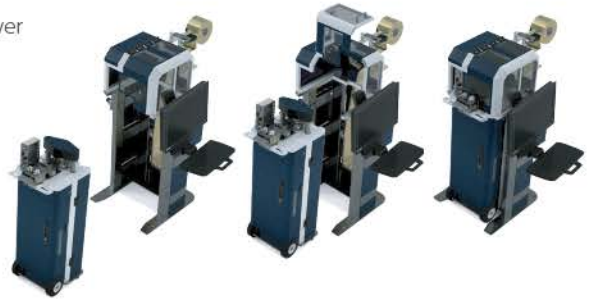
ALPHATECHNOLOGIES

MDR-X™

Moving Die Rheometer

Features

- Adaptable for lab and production floor use
- Auto module docking identification
- Sealed design for production floor environments
- Biconical cruciform-less dies with optimized groove profiles to reduce slippage and improve performance with stiffer stocks
- Uniquely designed heater provides reduced temperature gradients and improved temperature recovery
- Improved forced air die cooling with independent control to the upper and lower dies provides rapid temperature changes for better non-isothermal control
- Pressure transducer standard to provide pressure measurement in addition to torque
- Operates using Enterprise software, a flexible LIMS system based on an open SQL database design



Performance

- Unsurpassed test repeatability and reproducibility
- DYNAMIC SYMMETRY™ - A system that ensures parallel die closing, reducing variation
- SMART ALIGNMENT™ - A system that ensures excellent die cavity sealing for better repeatability
- SMART SEAL™ - An optional upper die assembly to eliminate the conventional elastomeric seal while maintaining a closed, pressurized cavity for improved long-term data stability and reduced need for torque calibrations (Lower Die Long Life Seal - Standard)

Options

- Oscillation amplitudes of 0.2, 1.0, 3.0, and 7.17 degrees arc mechanically set
- Smart Seal™ die assembly
- Multiple film types available
- Multiple languages available
- RAPID CHANGE™ - An adjustable eccentric option that allows simple and fast oscillation angle changes without the need for re-calibration (0.5 degrees arc is standard)

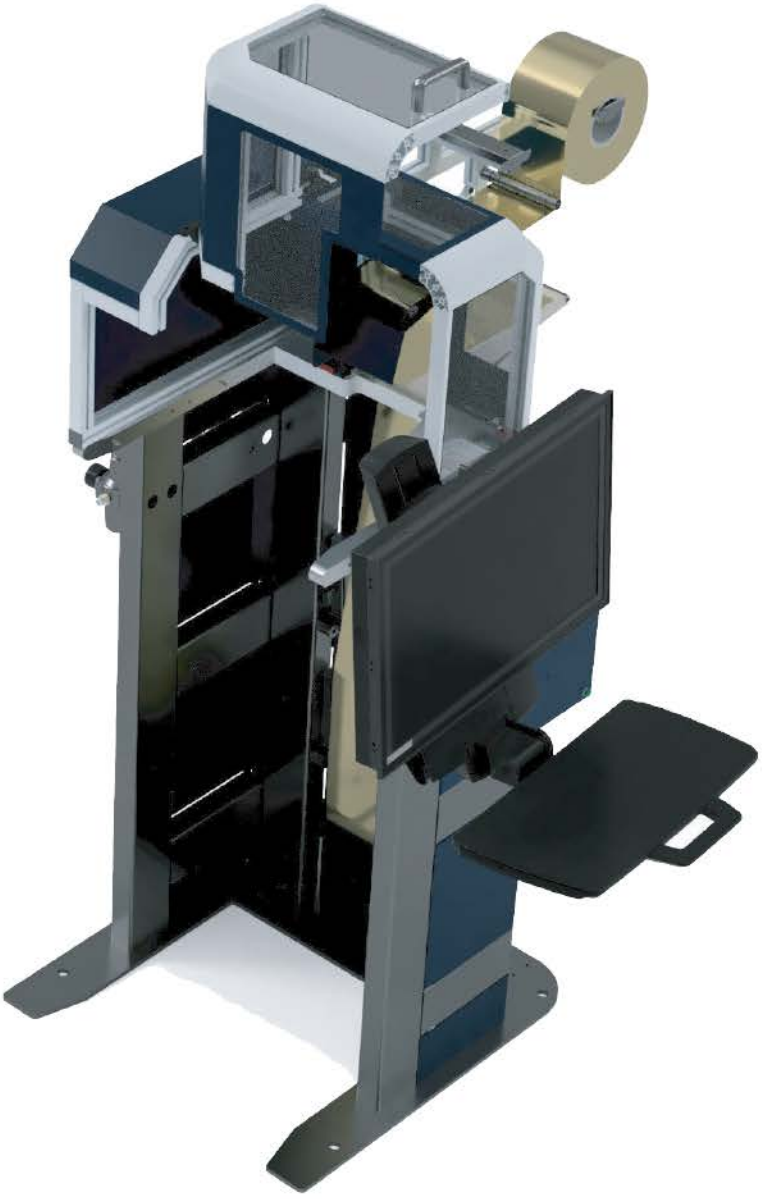
Specifications

FREQUENCY:	100 cpm (1.67 Hz)
TEMPERATURE RANGE:	Ambient to 446°F (230°C)
STRAIN:	0.5 Standard (7%); 0.2, 1.0, 3.0 and 7.17 degrees (2.8%, 14%, 42% or 100%) available
TESTING STANDARDS:	Meets ASTM D5289, ISO6502, and DIN 53529
ELECTRICAL:	100/110/115/120 VAC - 50/60 Hz, single phase
	200/220/240/260 VAC +/-10%, 50Hz +/- 3amp single phase
AIR PRESSURE:	60 psi (414Kpa, 4.2 kg/cm2) minimum
DIMENSIONS:	W: 19.7 in, D: 27.6 in, H: 57.4 in (W: 50 cm, D: 70 cm, H: 145.8 cm)

X-Dock™

Docking station for X-Series™ instruments

The new X-Series™ instruments are Alpha Technologies' modular production floor solution for customers who are looking to bring testing closer to the production line.



The X-Series™ brings Alpha's superior testing solutions to the production floor. The "X" in the X-Series™ brand name stands for "cross-over" from lab environment to production floor.

ALPHATECHNOLOGIES

X-Dock™

Docking station for X-Series™ instruments

Features

- Accomodates up to 14,000 tests between film roll changes
- Auto detection technology enables the X-Dock™ to recognize X-Series™ instrument type
- Touch screen industrial computer
- Configurable to use 2, 3, or 4 layers of film
- Organize data into reports and perform statistical analysis with intergrated Enterprise software
- Multiple languages available

Performance

- Compatible with MDR-X™ and RPA-X™
- Auto test module alignment
- Data management solution
- Production floor certified safety compliance
- Network ready
- Test configuration management

Specifications

DIMENSIONS:	W: 27.6 in (70 cm), D: 28.9 in (73.4 cm), H: 61.3 in (155.7 cm)	ELECTRICAL:	85-250 VAC/20A, 50-60 Hz

DisperGRADER™ αview

Precision Dispersion Testing Analyzer

The most expanded capabilities in optical dispersion analysis, generating superior repeatability and reproducibility

ALPHATECHNOLOGIES

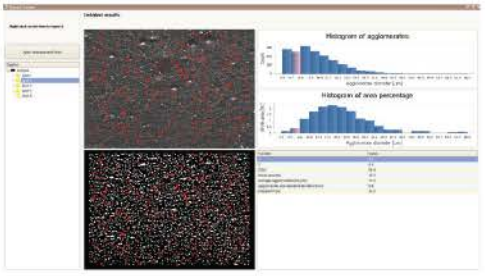
DisperGRADER™ αview

Precision Dispersion Testing Analyzer

Built upon proven methodology, DisperGRADER™ αview utilizes the most modern technology available to radically expand the capabilities of optical dispersion analysis methods. A reflected light microscope designed for dispersion testing of carbon black in mixed rubber compounds, the system analyzes the shadows cast by agglomerates present in a freshly cut sample surface.

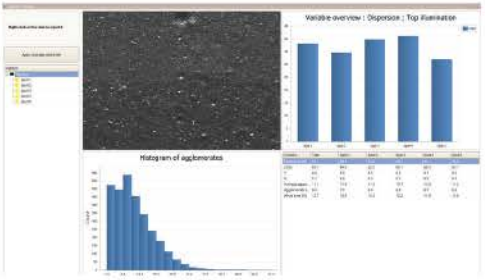
Features

- Autofocus for fast and consistent analysis
- Multiple data point acquisition per sample placement
- Laterally translating camera on precision rail system
- Four position LED lighting system
- Automatic and manual scanning capabilities
- Histogram, analytical data, and image database
- 5 Preloaded and user defined image banks
- Color camera
- Image analysis software determines size, number and location of agglomerates



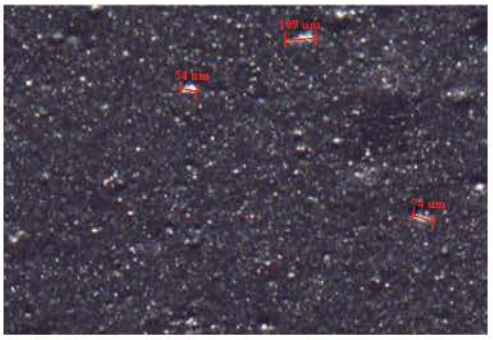
Performance

- Enterprise operational software
- Repeatable & Reproducible results verified to a standard



Options

- DisperGRADER™ αview SR - 3-57 microns
- DisperGRADER™ αview HR - 1-20 microns
- Uncured sample preparation system



αview SR

Specifications

- Meets ASTM D7723 and ISO 11345 (Methods C, D, and E)
- PC and Monitor included
- Electrical: 100-240VAC, 1.3amp, 50/60 Hz
- Dimensions: W:18.8 in (47.8 cm), D:11.7 in (29.7 cm), H:7.9 in (20.1 cm)
- Weight: 40.5 lbs (18.4kg)
- Aperture Size: 0.472 in (12 mm) x 0.236 in (6 mm)

D2020 Density

Specific Gravity Tester

The D2020 Density offers fully automated specific gravity testing

ALPHATECHNOLOGIES

D2020 Density

Density Tester

Features

- Automated 20 sample queue
- Eliminates operator influence
- Measurement of specific gravity using the weight in "air" and weight in "water"
- Rapid readings reduce the effect of water absorption
- Specific gravity of liquid is corrected for temperature
- Enterprise Software

Performance

- Measures specific gravity/density of cured compounds in the range of 1.05 to 2.00
- Carrier is "wetted" prior to the first weight to improve consistency of data

Options

- None

Specifications

Testing Standards:	ASTM D297 Section 16.3 and ISO 2781
Specific Gravity Range:	1.05 to 2.00
Accuracy:	Better Than ±0.5%
Standard Deviation:	(SG 1.05 to 1.4) 0.0015
Standard Deviation:	(SG 1.4 to 2.0) 0.0030
Automation Samples:	20
Sample Diameter:	35 to 45 mm
Sample Thickness:	4 to 10 mm
Maximum Sample:	Weight 18 g
Weight:	75 lb (34 kg)
Dimensions:	W: 23 in (58.4 cm), D: 20 in (50.8 cm), H: 20 in (50.8 cm)

AT10™

Tensile Tester

Universal, table-top tensile tester for rubber, plastics, and other materials

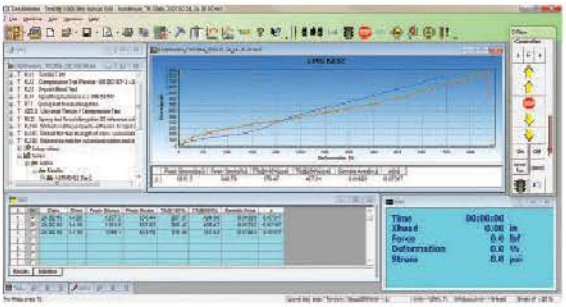
A table top model with a maximum load value of 10kN, the AT10 performs tension, compression, peel, tear, adhesion, o-ring and other tests for QC and R&D applications.

ALPHATECHNOLOGIES

AT10™
Tensile Tester

Features

- Comprehensive computer controlled testing with a full range of user features
- Basic license for tension, tear, compression, peel, adhesion and O-ring
- Data point selector and custom data point calculator
- Easily reanalyze and recalculate results
- Export to Excel, Word, or SQL database



Performance

- Measure tensile modulus of materials
- Suitable for quality control and research and development
- Meets ASTM E4 and E83 Standards

Options

- Additional software licenses for additional test requirements
- Output to Alpha Technologies LIMS software systems
- Automatic thickness gauge interfaced with software
- Wide selection of load cells
- Multiple languages available

Specifications

Compliance:	CE Approved
Load Frame Configuration:	2 column, table top electromechanical
Max. Rated Force Capacity:	10kN (2000)
Test Space:	Single zone
Typical Specimens:	plastics, yarn and cord, adhesives, elastomers, foam
Maximum Test Speed:	60 in/min (1500 mm/min)
Minimum Test Speed:	.00004 in/min (.001 mm/min)
Position Resolution:	.000002 in (.00005 mm)
Power Requirements:	120-240VAC, 50/60HZ, 5A Single Phase
Air Pressure (Min/Max):	90-120 psi (6.2-8.3 bar)

Force Accuracy:	Combined Error is .018%, Linearity is .01%
Speed Accuracy:	Set speed >0.01 mm/min, speed accuracy is above +/- 1.0% of set speed
Position Accuracy:	.0000018 in (.000046mm)
Strain Accuracy:	.000078in (.002mm), Linearity is .01%
Safety Protection:	Over-Force, travel limits, and others
Data Acquisition Rate:	0.02 sec transfer rate
Motor & Drive System:	AC Servo Motor
Dimensions:	W: 25 in, D: 30 in, H: 59 in (W: 63.5 cm, D: 76.2 cm, H: 149.86 cm)
Weight:	357 lbs (170 kg)
Vertical Test Space:	31.5 in (800mm)

ARC2020

Capillary Rheometer

Measuring the viscosity and die swell of rubber and thermoplastic elastomers at high shear rates

The ARC2020 is a capillary rheometer designed to test and collect information about viscosity and die swell of mixed rubber and thermoplastic elastomers at high shear rates. This information can be used to predict rubber behavior in processes with high shear rates such as injection molding.

ALPHATECHNOLOGIES

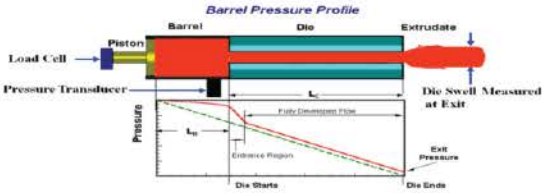
ARC2020

Capillary Rheometer

Features

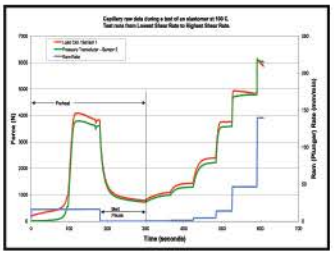
- Measures the viscosity and die swell of rubber and thermoplastic elastomers at high shear rates from 1 to 29,000 sec-1
- High maximum piston force of 15 kN
- Laser micrometer for die swell measurement
- 0.5 inch (12.7 mm) barrel for easy rubber sample loading

ARC 2020 Principal of Operation



Performance

- Predicts processability of mixed rubber used in calendaring, milling, extrusion, and molding
- Good test sensitivity to mixing errors or compound changes
- Suitable for quality control or research and development



Options

- Easy Change Barrel for Plastics (9.5505 mm diameter)
- Die Diameters:
  - 0.75 mm – 2 to 29,000 sec-1
  - 1.00 mm – 1 to 14,000 sec-1
  - 1.50 mm – 0.2 to 4000 sec-1
  - 2.00 mm – 0.1 to 1400 sec-1
- Die L/Ds: 1, 5, 10, 15, 20, 30, 33 available
- Die entry angles: 60°, 90°, 120°, 180° available
- Customized dies available upon request

Specifications

Testing Standard:	ASTM D5099
Temperature Range:	Ambient to 662°F (350°C)
Barrel Length:	9 in (229 mm)
Ram Rate:	0.001 to 23.6 in/minute (0.03 to 650 mm/min)
Crosshead Force:	0 to 15 kN (0 to 3370 lbf) ±0.5% F/S
Pressure:	0 to 140,000 kPa (0 to 20,000 psi)
Calibration:	Automatic

Measured Data:	Pressure, force from load cell, ram rate, time, extrude diameter
Calculated Data:	Shear stress, shear rate, η, % die swell, Bagley correction, Rabinowicz correction
Electrical:	100/110/120/130 VAC ±10%, 60 Hz ±3, 10-amp single phase 200/220/240/260 VAC ±10%, 50 Hz ±3, 5-amp single phase
Dimensions:	W: 19 in (49 cm), D: 22 in (56 cm), H: 59 in (150 cm)
Weight:	Net 300 lb (136 kg), gross 350 lb (160 kg)

AlphaCare® Service

Calibration, Maintenance and Support Services

AlphaCare® Service offers calibration and preventative maintenance programs, breakdown repair, site and multi-site correlations, special services and consultations, software support, and more.

AlphaCare® Services ensure data is obtained through scientifically accurate measurement. Instrument wear and tear can affect data integrity and performance. AlphaCare® keeps instruments running reliably and delivering the accurate data that customers depend on and Alpha is known for. Alpha Technologies' service engineers have an average of 12 years experience. That knowledge gives Alpha's service team a deep understanding of how to keep testing intruments performing at an optimal level.

ALPHATECHNOLOGIES

AlphaCare® Service

Calibration, Maintenance and Support Services

Calibration & Preventive Maintenance Programs

All AlphaCare® CPMP contracts include technical support, priority scheduling, discounts on Alpha training, and preferred rates for emergency services. AlphaCare® Services avoid unscheduled downtime and premature part failure, reduce scrap and rework, and ensure proper instrument functionality.

AlphaCare® Simplicity
Created for customers with lower production levels and testing frequency. The Simplicity plan is a good fit for customers who depend on reproducibility. Includes an annual check-up and calibration visit.

AlphaCare® Select
The Select plan will achieve and maintain reproducibility, repeatability and accuracy for companies who rely on their testing instruments as an important part of their productivity. Includes two annual check-up and calibration visits.

AlphaCare® Advantage
The Advantage program is customized for customers who require peak performance year round. The Advantage program is an excellent path to maximize up-time and data integrity in high testing frequency environments. Includes four annual check-up and calibration visits and one free breakdown/emergency service visit.

Emergency Service

Alpha offers phone support when a problem arises. If an instrument requires immediate service, Alpha will dispatch a factory trained service engineer to address the issue on-site.

Software Support

A software support contract includes annual upgrades, personalized reports, troubleshooting helpline, remote training, and discounted on-site training visits. The contract also provides unlimited phone and email support with our skilled technicians located worldwide. Customers can use software support contracts for:

- Recovery assistance
- Basic configuration setup
- Maintenance assistance
- Upgrade installation with remote session

Calibration & Verification

Alpha field service engineers follow standard ISO and ASTM procedures worldwide to ensure instruments provide consistent quality data regardless of location. Alpha ISO 17025 accreditation covers: torque, temperature, angle, mass, and force. Certificates are provided for ISO services.

AlphaCare® Parts

Spare Parts and Consumables

Alpha maintains stock of quality OEM parts in warehouses globally. Locations include: The US, Europe, India, China, and Japan.

Alpha OEM spare parts are critical for instrument operation and data consistency. Non-Alpha parts could result in failures and data shift. Using Alpha OEM parts ensures that instruments are measuring the actual compoud or polymer properties not the variation in consumables. Alpha keeps the parts consistent so testing data can remain accurate.

ALPHATECHNOLOGIES

AlphaCare® Parts

Spare Parts and Consumables

Maintenance Service Kits

During an AlphaCare® service visit, Alpha technicians not only perform calibration on the instrument, but they also inspect every assembly and component to determine if any parts need replaced prior to the next service visit. These preventitive maintenance inspections and proactive part replacements have proven to greatly reduce the risk of instrument downtime and disruption.

- AlphaCare® service kits can be quoted with the service contract so that the cost is known in advance
- On-site availability
- Reduced downtime risk

Spare Part Kits

Using 50+ years of enperience, Alpha has compiled a list of spare parts most commonly used within the first two years after installation. Alpha can customize inventory requirements for multiple instruments.

- No delay on spare parts delivery
- Costs can be budgeted in advance
- On-site availability
- Reduced downtime

Film

Alpha offers a wide selection of quality films to suit each customer's individual needs. Using Alpha films saves time while protecting the instrument from die, rotor, and seal contamination without any influence on data integrity.

- Less time spent cleaning and more run time
- Prolongs life of seals
- Reduced downtime due to maintenance
- Improves data repeatability and correlation between instruments

MDR polyester films are available in lot-traceable and non-traceable rolls and pre-cut sheets. MV/ODR polyester films come with a pre-cut hole in the middle for the roter shaft. These are available as both lot-traceable and non-traceable pre-cut sheets. RPA nylon films are available in lot-traceable rolls or pre-cut sheets. Alpha also offers speciality polyimide films for very high temperature applications.

Long Life™ Seals

Seals and O-Rings

Long life seals are available for Alpha Technologies MDRs and MVs. This innovation is available to customers who have MVs and MDRs.

In our search for continuous improvement, and the need to bring added value products to the industry, Alpha Technologies has developed long life seals. These seals drastically reduce the need for routine replacement of the MV lower die seal and both upper and lower MDR seals.

Changing die seals and recalibrating a system can take over a half hour for an MV and up to three hours for an MDR. The long life seals from Alpha Technologies eliminate the need to change seals for up to six months.

ALPHATECHNOLOGIES

Long Life™ Seals

Seals and O-Rings

Benefits

- Eliminate seal changes for up to six months
- Reduce required torque calibrations
- Increase instrument uptime
- Reduce data drift caused by seal wear for up to six months
- Improve data repeatability and correlation between instruments

Performance

Each change of an MV seal can take a half hour or more. This process requires removing the old seal, cleaning the central shaft, replacing the seal, balancing the system, checking the rotor height, and stabilizing the instrument die cavity temperature. If more than 100 seals are changed in a year, this equates to over 50 hours of lost testing time. The time it takes to change seals and recalibrate an MDR system can take up to three hours.

Seal Change Frequency	Uptime Increase Over 6 Months
twice per week	156 hours
once per week	78 hours
once per month	18 hours

The New Standard

Customers from all segments of the industry have moved to the long life design to take advantage of the efficiencies and savings. Overall, the preference is the new long life seal option. Stop losing valuable testing time by switching to long life seals on your instrument.

Case Study

An Alpha Technologies production MDR (PMDR) was recently fitted with the new long life seals. The system was used continuously for six months and ran approximately 90,000 tests during this time. Each test was performed at 195°C, with a typical test time of two minutes. The system was not recalibrated during this time. However, a check sample was run at the beginning of each shift to confirm performance. The PMDR was found still in Grade 1 condition after six months of continuous use. After that time, the seals were changed by an Alpha Technologies Field Service Engineer during a routine calibration and preventative maintenance visit.

Pre-calibration data with used long life seals

Pre-cal tests	Min Torque	Max Torque	T90 (time)	S"@Max Torque
Test 1	1.11	19.10	5.09	0.98

Post-calibration tests with new long life seals

Post-cal tests	Min Torque	Max Torque	T90 (time)	S"@Max Torque
Mean	1.11	19.01	5.11	0.98

Grade 1 operating limits

Grade Limits	Min Torque	Max Torque	T90 (time)	S"@Max Torque
Grade 1 Upper Limit	1.13	19.72	5.22	1.11
Grade 1 Lower Limit	1.02	18.50	4.92	0.93

Alpha Training

Instrument Operation and Rheological Course Training

Alpha offers many options to make sure operators and lab professionals are confident with their testing procedures and instruments.

ALPHATECHNOLOGIES

Alpha Training

Instrument Operation and Rheological Course Training

Operational Training

Operational training is intended for those who work alongside the instruments on a daily basis. This level of training is designed to help guide the operators/lab technicians through the fundamental knowledge needed to complete daily tasks with an emphasis on the Workbench Interface, operator interaction, and instrument operation.

Basic Instrument Training

- Basic operation
- Detailed instrument features and functions
- Routine maintenance

Basic Software Training

- Basic software capabilities for general customer needs
- Software operational foundation

Software Administrative Training

- Operational and system maintenance for Daisy or Enterprise software
- Advanced setup features

Instrument/Software Refresher Training

- Basic operation, calibration and maintenance review
- Basic software interface review

Advanced Maintenance Training

Technicians will cover theory of operation and preventative and corrective maintenance procedures. This training option is designed to compliment AlphaCare® CPMP Services.

Advanced Software Training

Intended for those customers wanting to take full advantage of all the Enterprise and database features. This is a high-level option which may require involvement from IT/database specialists and SQL programmers. This training is generally reserved for those customers who have owned and operated the Enterprise software for a period of 6 months and wish to tailor the system for specific inputs/outputs, barcoding, certificate of analysis reports, automatic material release reports or data connections to other plant locations. This option should be scheduled after the commissioning of instruments.

Custom Applications Training

This option is for those customers who need specific test development and data which is intended to improve product process and quality. Customers can enhance their testing capabilities, data collection, and reporting through one-on-one training. Detailed research and product experiments may be included depending on the customer requests. These items should be discussed with the applications specialist prior to an on-site visit since some preliminary work may be required. This test configuration training and information session is intended for customers familiar with polymer testing and have established testing standards. This option should be scheduled after the commissioning of instruments.

Advanced Rheology Training Course

This is a modern course designed around the theory behind rheology testing. Alpha applications professionals will guide participants through hands-on instrument and software activities. This training is suitable for the widest range of people, from potential customers to customers who have been with Alpha for many years.

alpha-technologies.com

Alpha Technologies
6279 Hudson Crossing Parkway, #200 | Hudson, Ohio 44236, USA
Tel No. +1 330 745 1641 | Toll Free No. +1 800 356 9886

Alpha Technologies Germany
Pfaffenstrasse 21 | 74078 Heilbronn, Germany
Tel No. +49 7131 382 4800

Alpha Technologies Italy
Via G. Matteotti 62 | 20092 Cinisello Balsamo (MI), Italy
Tel No. +39 02 61291599

Alpha Technologies Japan
3F Sakurai Building | 2-8-19, Fukagawa, Koto-ku | Tokyo 135-0033 Japan
Tel No. +81 3 4510 2371

Alpha Technologies China
Room 601, 567 Lan Gao Road | Shanghai 200333 | China
Tel No. +86 21 8036 9430