

ACQUITY Arc System

The Waters™ ACQUITY™ Arc™ System is the only available LC system with regulatory compliant-ready hardware and software for both HPLC and UHPLC separations in one instrument. With an expanded range of column manager options enabling up to 15-column switching from 4 °C to 90 °C and Arc Multi-flow path™ technology, the ACQUITY Arc System allows you to generate new methods and modernize legacy HPLC methods faster than ever before.

SYSTEM FEATURES

Total system bandspread, 4 σ	≤30 μ L (default configuration)
Dwell volume (total system)	Path 1 ≤ 1450 μ L Path 2 ≤ 1150 μ L
Gradient delay volume	Path 1 ≤ 1050 μ L Path 2 ≤ 750 μ L
Integrated leak management	Leak sensors, as standard, and safe leak handling
Quantum synchronization	Injection synchronization between pump and injector enhances retention time reproducibility
Operating flow rate range	0.001 to 5.000 mL/min, in 0.001 mL increments
Maximum operating range	9500 psi up to 5.000 mL/min
pH range	1 to 12.5
Unattended operation	Leak sensors and safe leak handling, full 96-hour diagnostic data display through console software
Cycle time	≤30 seconds inject-to-inject

QUATERNARY SOLVENT MANAGER-R

Solvent capacity	Blend up to four solvents in any combination (standard); total capacity of nine solvents with integrated solvent select valve (optional)
Number of fluidic paths	Three (Path 1, Path 2, and waste), with Arc Multi-flow path technology (standard)
Dwell volume selection	Automated with Arc Multi-flow path technology
Solvent conditioning	Integrated vacuum degassing, four chambers
Gradient formation	Low-pressure mixing, quaternary gradient
Gradient profiles	11 gradient curves [including linear, step (2), concave (4), and convex (4)]
Check valves	Passive check valves
Flow accuracy	+/- 1.0% at 0.5, 3.0, and 5.0 mL/min

Flow precision	≤0.075% RSD or +/-0.020 min SD, whichever is greater, based on six replicates [60:40 water:methanol pre-mixed; 1.5 mL/min; alkylphenone mix; 24.0 µL injection volume; CORTECS™ C ₁₈ 2.7 µm, 4.6 x 50 mm; 35 °C; UV @254 nm]
Composition ripple	≤0.5 mAU [mobile phase containing 0.1% TFA in water/acetonitrile; 1.5 mL/min; CORTECS C ₁₈ 2.7 µm, 4.6 x 50 mm; 35 °C; UV @214 nm]
Composition accuracy	+/- 0.5% absolute (full scale) from 5 to 95%; 0.5 to 5.0 mL/min [methanol; methanol with 5.0 mg/mL caffeine step gradient; UV @273 nm]
Composition precision	+/- 0.15% RSD or 0.04 min SD, whichever is greater based on six replicate injections [60:40 water:methanol via Auto-Blend™ Technology; 0.5 mL/min; alkylphenone mix; 24.0 µL injection volume; CORTECS C ₁₈ 2.7 µm, 4.6 x 50 mm; 35 °C; UV @254 nm]
Compressibility compensation	Automatic and continuous
Priming	Wet priming can run at flow rates up to 10 mL/min
Pump seal wash	Standard
Primary wetted materials	316L stainless steel, PPS, fluoropolymer, UHMWPE blend, sapphire, ruby, zirconia, DLC, PEEK and PEEK blend, titanium alloy

SAMPLE MANAGER FTN-R

Injection volume range	0.1 to 50.0 µL as standard
	Up to 1000.0 µL with optional extension loops
Sample capacity	768 [2x 384-well plate]; or 96 [2-mL vial holders]
Any two of the following:	48-position, 2.00-mL vial holder (total capacity of 96 vials) 96-well plate 384-well plate 48-position, 0.65-mL micro-centrifuge tube plate 24-position, 1.50-mL micro-centrifuge plate
Sample compartment temperature	4.0–40.0 °C, settable in 0.1 °C increments (optional)
Temperature accuracy	+/- 0.5 °C at the sensor
Temperature stability	+/- 1.0 °C at the sensor
Injection needle wash	Integral, active and programmable
Minimum sample required	3 µL residual, using total recovery 2-mL vials
Accuracy (aspiration)	+/- 0.2 µL
Linearity	>0.999; 0.2 – 50.0 µL
Precision	<1.0% RSD from 0.5 to 0.9 µL
	<0.5% RSD from 1.0 to 4.9 µL
	<0.25% RSD from 5.0 to 1000.0 µL

Sample carryover	≤0.002% [Caffeine] under UV conditions
Advanced capabilities	Auto-dilution; auto-addition; load ahead
Primary wetted materials	316L stainless steel, gold plated stainless steel, polyimide, PEEK blend, DLC

COLUMN HEATER (CH-A AND CH-30A)

Column capacity	CH-A: Single column, up to 4.6 mm I.D.; up to 150 mm length with filter or guard column CH-30A: Single column, up to 4.6 mm I.D.; up to 300 mm length with filter or guard column
Column compartment temperature	20.0 (or 5.0 °C above ambient) to 90.0 °C, settable in 0.1 °C increments
Temperature accuracy	+/- 0.5 °C at the sensor
Temperature stability	+/- 0.3 °C at the sensor
Solvent conditioning	Active pre-heating
Column tracking	eCord™ Technology tracks column usage and history

COLUMN MANAGEMENT (CM-A AND CM-AUX)

Column capacity	CM-A: Two columns, as standard (maximum length of 150 mm with filter or guard column) or four columns (maximum length of 50 mm) can be supported with optional tubing kit, up to 4.6 mm internal diameter (I.D.) CM-Aux: Two columns (maximum length of 150 mm, with filter or guard column) – up to two CM-Aux units can be configured with one CM-A for support of up to six columns
Switching valves	Two nine-port, eight-position valves (CM-A only); provides programmable, automatic, random access switching, waste and bypass positions for rapid solvent changeover
Column compartment temperature	4.0 to 90.0 °C, settable in 0.1 °C increments; two independent heat/cool zones per module, up to six zones in stacked configuration
Temperature accuracy	+/- 0.5 °C at the sensor
Temperature stability	+/- 0.3 °C at the sensor
Solvent conditioning	Active pre-heating
Column tracking	eCord Technology tracks column usage and history

30-CM COLUMN HEATER AND HEATER COOLER (30-CM CH AND 30-CM CHC)

Column capacity	Single column, up to 7.8 mm I.D.; up to 300 mm length with filter or guard column; up to three columns with optional 3-position column selection valve
Column selection	Up to three with optional 3-column selection valve (8-port, 9500 psi)
Column compartment temperature	30-cm CHC: 4.0 (or 15.0 °C below ambient, whichever is greater) to 65.0 °C 30-cm CH: 20.0 (or 5.0 °C above ambient) to 65.0 °C
Temperature accuracy	+/- 0.5 °C at the sensor
Temperature stability	+/- 0.3 °C at the sensor
Solvent conditioning	Passive pre-heating

30-CM SINGLE ZONE COLUMN MANAGER

Column capacity	Eight columns, up to 8.0 mm I.D.; up to 300 mm length with filter or guard column. Up to two CM30-S units can be configured for support of up to 15 columns
Column selection	Automated and Standard
Column compartment temperature	20.0 to 90.0 °C, settable in 0.1 °C increments
Temperature accuracy	+/- 0.5 °C at the sensor
Temperature stability	+/- 0.5 °C at the sensor
Solvent conditioning	Passive pre-heating

INSTRUMENT CONTROL

Informatics compatibility	Empower™ Chromatography Data System, MassLynx™ Software
Communications	Ethernet
Event input/output	Contact closure and/or TTL input/output
Connections INSIGHT™	Provides real-time monitoring and automatic notification of instrument performance and diagnostic information

ENVIRONMENTAL SPECIFICATIONS

Acoustic noise [total system]	≤65 dBA
Operating temperature range	4.0 to 40.0 °C
Operating humidity range	20% to 80%, non-condensing

ELECTRICAL SPECIFICATIONS

Power requirements	100 to 240 VAC
Line frequency	50 to 60 Hz
Power consumption	QSM: 200 VAC SM FTN-R: 400 VAC 30-cm CHC: 240 VAC 30-cm CH: 50 W CH30-A: 50 W

PHYSICAL SPECIFICATIONS

ACQUITY Arc System:

Quaternary Solvent Manager-R,	Width: 57.4 cm (22.6 in.)
Sample Manager FTN-R,	Height: 57.1 cm (22.5 in.)
30-cm Column Heater,	Depth: 62.8 cm (24.7 in.)
and Mounting Bracket	Weight: 59.1 kg (130.0 lbs)

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