

Bruker timsTOF Pro Mass-spectrometer  
Specifications

<b>Bruker timsTOF Pro</b>	
<b>System Performance verification with ESI Source</b>	
System resolution verification of positive ion mode	Resolution of mass m/z 1222 $\geq$ 50,000
TIMS linear calibration accuracy	Standard deviation < 1.0%
TIMS accuracy @1/K0 = 1.38	$\leq$ 0.5%
Mass accuracy of full scan MS mode of m/z 122.990637	<ul style="list-style-type: none"> <li>• Specified internal mass accuracy with internal calibrant <math>\leq</math> 0.8 ppm</li> <li>• Specified external mass accuracy with external calibrant <math>\leq</math> 2 ppm</li> </ul>
Mass accuracy of MS/MS mode of Substance P with external calibration	$\leq$ 2 ppm
System sensitivity of MS/MS mode	Signal-to-noise ratio $\geq$ 100:1 (most intense fragment obtained from 2.5 fmol of Glu-Fibrinopeptide B)
System resolution verification of negative ion mode	Resolution of mass m/z 1334 $\geq$ 50,000

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<b>Bruker Elute UPLC system</b>		
<b>Pump</b>	Pump	Binary with HPG (High Pressure Mixing) and two channels
	Solvent Selection Valve	2 solvents per pump module (A/B)
	Degasser	Internal vacuum degassing, 2 - channel, 480 µL chambers, individually for each pump module (A/B)
	Separate rear piston seal wash	
	Compressibility Compensation	Continuous and fully automatic
	Pressure range	0 - 1300 bar (0 - 18855 psi) for 0 - 2000 µL/min
	Pressure pulsation	< 1 % at 200 µL – 2000 µL/min (with water), or < 5 bar, whichever is greater
	Flow range	1 µL/min - 4000 µL/min
	Flow resolution	1.0 µL/min increments
	Flow accuracy	1 % or 10 µL/min whichever is greater (with water for flow range 0.200 – 2.000 mL/min)
	Flow precision	RSD < 0.075 % or min SD 0.005 min.
	Gradient range	0 - 100 %
	Gradient composition accuracy	± 0.5 % absolute from 5 - 95 % (200 µL - 2000 µL/min)
	Gradient composition precision	< 0.15 % or 0.01 minute SD (200 µL - 2000 µL/min)
	Mixer Volume	35 µL (Gradient delay volume 50 µL)
pH range	1.0 - 12.0 (1-10 for purge valve)	
<b>Autosampler</b>		
	General injection modes	Full loop, partial loop fill, and µL pickup mode
	Injection range	1 - 5000 µL (depends on installed flow path, sample loop, and injection mode)

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	Accuracy	< 0.5 % RSD
	Precision (RSD) (for injection volume > 5 µL)	< 0.3 % for full loop, < 0.5 % for partial loop fill, < 1 % for µL pick-up
	Sample viscosity	0.1 – 5 cP
	Sample capacity	2 - 96 or 2 - 384 well, 108 vial tray for 2 mL; 30 vial tray for 10 mL vials (optional)
	Sample Temperature	Heating/cooling for temperature range of 4 - 40 °C (Measured as air temperature in sample compartment for maximum ambient temperature 25 °C and maximum humidity 80%)
	Carryover	< 0.001% (chlorhexidine) with programmable needle wash
<b>Standard Column Oven (#1845354)</b>		
Oven	External	
Column Temperature	Ambient +10 °C to 90 °C, with 1°C increments.	
Temperature accuracy & stability	Better than 0.1 °C, measured at 30 °C in the centre of the oven compartment	

<b>Bruker nanoElute nano-flow UHPLC system</b>		
<b>Autosampler</b>	Injection loop	20 µL
	Injection volume range	0.5 – 18.5 µL
	Injection volume reproducibility (% RSD)	0.3% at 10 µL; 1.0% at 500 nL
	Injection volume linearity	R2 = 0.996 at 1 – 15 µL range
	Carry over	0.003% (< 30 ppm), Chlorhexidine
	Sample handling formats	2 slots, each with 54 vials or 96 well microtiter plate
	Cooling	7° C, 14°C, and room temperature (21°C)

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<b>Pumps and valves</b>	Pumps	Single-acting syringe pumps with ceramic piston and 1350 µL reservoir
		Flow rate: 50 – 2000 nL/min in gradient mode
		Pressure driven sample loading
		Pressure limit: 1000 bar
	Valves	Four 6-port, multi position UHPLC valves
<b>Column oven for captive spray</b>	Temperature range	Room temperature to 50°C
	Connection to the source	Direct connection (Zero dead volume between the column and source for trouble-free MS analysis)