

## COMPARISON TABLE:

### KNAUER BlueShadow Pump 40P, 50 ml/min



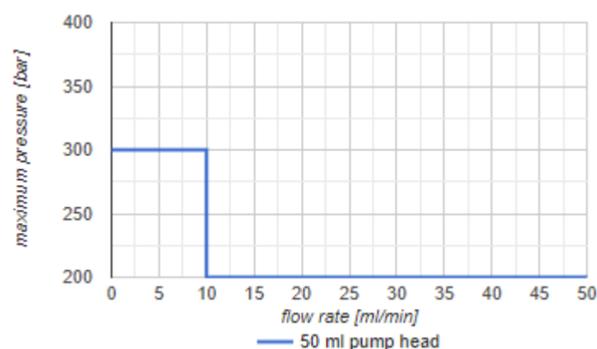
The BlueShadow Pump 40P was designed to provide exceptionally precise and reliable solvent delivery for a wide range of HPLC and dosing applications

Exchangeable pump heads with maximum flow rates of 10 and 50 ml/min cover a wide range of high-pressure dosing tasks. Practically pulse-free flow is achieved by our enhanced smart drive control which actively prevents pressure ripple instead of just dampening it. The improved design ensures a low dead volume, and the inline filter protects your column from clogging and pressure build-up.

Pump heads for high-temperature applications enable solvent delivery at up to 120 °C. Minimize temperature gradients by adding a pump head heater and insulation sleeve.

For more information on this pump range contact us on [info@rubiconscience.com.au](mailto:info@rubiconscience.com.au)

#### Pressure range



BlueShadow Pump 40P 50 ml/min	Stainless steel pump head P/N APC40FA	Stainless steel pump head for liquid temperatures up to 120°C P/N APC40FE	Stainless steel pump head for liquid temperatures up to 120°C, with piston backflushing P/N APC40FH	Ceramic pump head P/N APC60FB
<b>Max. flow rate</b>	50 ml/min	50 ml/min	50 ml/min	50 ml/min
<b>Flow rate range</b>	0.01 - 50 ml/min			
<b>Flow rate increment</b>	0.001 ml/min	0.001 ml/min	0.001 ml/min	0.001 ml/min
<b>Maximum delivery pressure [psi]</b>	4350 psi	4350 psi	4350 psi	2900 psi
<b>Maximum delivery pressure [MPa]</b>	30 Mpa	30 Mpa	30 Mpa	20 MPa
<b>Maximum delivery pressure [bar]</b>	300 bar	300 bar	300 bar	200 bar
<b>Pump head materials</b>	Stainless steel	Stainless steel	Stainless steel	Ceramic
<b>Maximum viscosity</b>	100 cp, 100 mPa·s			
<b>Liquid temperature range</b>	4–60 °C	4–120 °C	4–120 °C	4–60 °C
<b>Gradient</b>	Isocratic	Isocratic	Isocratic	Isocratic
<b>Leak management</b>	No	No	No	No
<b>Wetted materials</b>	GFP (graphite fiber reinforced PTFE), sapphire, ruby, stainless steel	GFP (graphite fiber reinforced PTFE), sapphire, ruby, stainless steel	GFP (graphite fiber reinforced PTFE), sapphire, ruby, stainless steel	GFP (graphite fiber reinforced PTFE), sapphire, ruby, ceramic, PEEK
<b>Pump Features</b>	Piston seal wash, Purge valve (manual), RFID for automatic pump head detection, Standalone control and programming, Integrated pressure sensor, Active pulsation compensation	Piston seal wash, Purge valve (manual), RFID for automatic pump head detection, Standalone control and programming, Integrated pressure sensor, Active pulsation compensation	Piston seal wash, Purge valve (manual), RFID for automatic pump head detection, Standalone control and programming, Integrated pressure sensor, Active pulsation compensation	Piston seal wash, Purge valve (manual), RFID for automatic pump head detection, Standalone control and programming, Integrated pressure sensor, Active pulsation compensation
<b>DETAILED INFORMATION</b>				
<b>Best working conditions</b>	0.1–40.0 ml/min	0.1–40.0 ml/min	0.1–40.0 ml/min	0.1–40.0 ml/min
<b>Continuous working conditions</b>	0.1 – 20.0 ml/min	0.1–20.0 ml/min	0.1–20.0 ml/min	0.1–20.0 ml/min
<b>Flow rate accuracy</b>	± 1 %	± 1 %	± 1 %	± 1 %
<b>Flow rate accuracy conditions</b> (using ethanol/water 10:90)	5 - 80% of flow range			
<b>Flow rate precision</b> (measured at 1 ml/min using ethanol/water 10:90)	≤ 0.1 % RSD	≤ 0.1 % RSD	≤ 0.1 % RSD	< 0.1% RSD
<b>Pulsation compensation</b> - Yes	< 2 % amplitude (typically < 1.3 %) or < 0.3 MPa (3 bar), whatever is greater, at 1 mL/min ethanol, at all pressures > 1 MPa (10 bar, 147 psi)	< 2 % amplitude (typically < 1.3 %) or < 0.3 MPa (3 bar), whatever is greater, at 1 mL/min ethanol, at all pressures > 1 MPa (10 bar, 147 psi)	< 2 % amplitude (typically < 1.3 %) or < 0.3 MPa (3 bar), whatever is greater, at 1 mL/min ethanol, at all pressures > 1 MPa (10 bar, 147 psi)	< 2 % amplitude (typically < 1.3 %) or < 0.3 MPa (3 bar), whatever is greater, at 1 mL/min ethanol, at all pressures > 1 MPa (10 bar, 147 psi)
<b>Active piston seal washing</b>	Yes	Yes	Yes	Yes
<b>System protection</b>	soft start, Pmin and Pmax are programmable			
<b>Pump head inlet (standard)</b>	1/4"-28 UNF (flat bottom)			
<b>Pump head outlet (standard)</b>	10–32 UNF (coned)	10–32 UNF (coned)	10–32 UNF (coned)	10–32 UNF (coned)
<b>COMMUNICATION</b>				
<b>Interfaces</b>	LAN, Pin header connectors (Analog IN, Start In, Error IN), LCD Display	LAN, Pin header connectors (Analog IN, Start In, Error IN), LCD Display	LAN, Pin header connectors (Analog IN, Start In, Error IN), LCD Display	LAN, Pin header connectors (Analog IN, Start In, Error IN), LCD Display
<b>Control</b>	LAN, Analog and event control			
<b>Analogue inputs</b>	Flow rate, 0 - 10 V via pin header connectors	Flow rate, 0 - 10 V via pin header connectors	Flow rate, 0 - 10 V via pin header connectors	Flow rate, 0 - 10 V via pin header connectors
<b>Analogue outputs</b>	8 event outputs (TTL, OC, Relais) & 24V	8 event outputs (TTL, OC, Relais) & 24V	8 event outputs (TTL, OC, Relais) & 24V	8 event outputs (TTL, OC, Relais) & 24V
<b>GENERAL</b>				
<b>Power supply</b>	100 - 240 V; 50 - 60 Hz	100–240 V; 50–60 Hz	100–240 V; 50–60 Hz	100–240 V; 50–60 Hz
<b>Dimensions</b>	242 x 165 x 399 mm (W x H x D)	242 x 165 x 399 mm (W x H x D)	242 x 165 x 399 mm (W x H x D)	121 x 129 x 220 mm
<b>Weight</b>	5.1 kg	5.1 kg	5.1 kg	5.1 kg
<b>Leak sensor</b>	No	No	No	No
<b>Ambient Conditions</b> air humidity below 90 % humidity (non-condensing)	4–40 °C Air humidity: below 90 % humidity, non- condensing	4–40 °C Air humidity: below 90 % humidity, non- condensing	4–40 °C Air humidity: below 90 % humidity, non- condensing	4–40 °C Air humidity: below 90 % humidity, non- condensing