

BlueShadow Pump 80P

The BlueShadow Pump 80P delivers stable and precise solvent flow for your dosing application. Available in stainless steel or biocompatible titanium versions, the pump heads enable a wide range of applications. The integrated automatic recognition of the pump head with RFID technology allows the fast adaption of the pump. Change from low-flow organic solvent delivery to high-flow biocompatible buffer metering with minimum downtime.

By adding one or more additional pumps, binary, ternary or even quaternary high-pressure mixing gradient systems can be easily configured. The pump can also be equipped with a binary or ternary gradient valve block to configure cost-effective low-pressure gradient mixing systems. Exchangeable pump heads for flow rates up to 1 000 ml/min and pressures up to 40 MPa make it possible to easily adapt the pump to changing performance requirements and allow simple maintenance.



Specifications

Solvent delivery

Pump type	High Pressure Dosing Pump
Delivery system	Dual Piston Pump with two working pistons
Pulsation compensation	Active Pulsation Compensation
Piston seal washing	Active Wash
Flow rate accuracy	± 2 %, measured at 5 - 50% of the flow range using ethanol/water 10:90
Flow rate precision	< 0.1% RSD, measured at 5 - 50% of the flow range using ethanol/water 10:90
System protection	Pmin und Pmax adjustable
Gradient range	0 - 100 % (with optional LPG valve block)
Gradient formation	LPG (with optional LPG valve block) or HPG
Liquid temperature range	4–60 °C (39.2–140 °F)
Pump head inlet (standard)	M8 x 1 (flat bottom)
Pump head outlet (standard)	M8 x 1 (coned)

Communication

Display	LCD Display
Inputs	LAN, RS-232, Pin header connectors (Analog IN, Start In, Error IN)
Analog inputs	Flow rate, 0 - 10 V via pin header connectors
Analog control input	Flow Rate
Level/event outputs	8 event outputs (TTL, OC, Relais) and 24 V
Control	Standalone, LAN, RS-232, Analog and event control
Programming	19 programs, 10 program links (Links), 1 WAKE UP program (Program 20)

Technical parameters

Special features	Pump Head is detected automatically using radio frequency identification (RFID)
Conformity	IP20 ingress protection
Ambient conditions	4 - 40 °C (50-104 °F), Air humidity below 90%, non-condensing

General

Power supply	100 - 240 V; 50 - 60 Hz; Maximum power consumption 320 Watt
Dimensions	242 x 191 mm x 407 mm (W x H x D)
Weight	13,2 kg
Optional accessories	Ternary low pressure gradient (LPG) valve block (10 - 220 ml/min), binary LPG valve block (10 - 800 ml/min), pump head heating and cooling device, mixer



For accessories
see page 19.



A variety of software control options is available: KNAUER offers various options for drivers. For more information, please visit <https://www.knauer.net/softwarecontrol>

BlueShadow Pump 80P with 100 ml pump head

Specifications

Pump specifications	
Pump head	100 ml
Flow rate range	0.01 - 100 ml/min
Maximum delivery pressure	5800 psi / 400 bar / 40 MPa
Wetted materials	Aluminium oxide (Al ₂ O ₃), FKM, graphite fiber reinforced PTFE, PEEK, sapphire, stainless steel, titanium
Maximum viscosity	1000 mPa s
Flow rate increment	0.01 ml/min
Best working conditions	1 - 80 ml/min
Continuous working conditions	1 - 40 ml/min
Pump head inlet (standard)	4 mm OD, 3 mm ID PTFE tubing, (M8x1 flat bottom)
Pump head outlet (standard)	1/8" (M8x1 coned)
Pumphead material	Stainless steel / titanium

Ordering details:

APD30KA	BlueShadow Pump 80P with 100 ml pump head (stainless steel)
APD60KB	BlueShadow Pump 80P with 100 ml pump head (titanium)

BlueShadow Pump 80P with 250 ml pump head

Specifications

Pump specifications	
Pump head	250 ml
Flow rate range	0.01 - 250 ml/min
Maximum delivery pressure	3260 psi / 225 bar / 22.5 MPa up to 100 ml/min, 2900 psi / 200 bar / 20 MPa up to 250 ml/min
Wetted materials	Aluminium oxide (Al ₂ O ₃), FKM, graphite fiber reinforced PTFE, PEEK, sapphire, stainless steel, titanium
Maximum viscosity	1000 mPa s
Flow rate increment	0.1 ml/min
Best working conditions	2.5 - 200 ml/min
Continuous working conditions	2.5 - 100 ml/min
Pump head inlet (standard)	4 mm OD, 3mm ID PTFE tubing, (M8x1 flat bottom)
Pump head outlet (standard)	1/8" (M8x1 coned)
Pumphead material	Stainless steel / titanium

Ordering details:

APD30LA	BlueShadow Pump 80P with 250 ml pump head (stainless steel)
APD60LC	BlueShadow Pump 80P with 250 ml pump head (titanium)

BlueShadow Pump 80P with 500 ml pump head

Specifications

Pump specifications	
Pump head	500 ml
Flow rate range	0.01 - 500 ml/min
Maximum delivery pressure	1450 psi / 100 bar / 10 MPa
Wetted materials	Aluminium oxide (Al ₂ O ₃), FKM, graphite fiber reinforced PTFE, PEEK, sapphire, stainless steel, titanium
Maximum viscosity	1000 mPa s
Flow rate increment	0.1 ml/min
Best working conditions	5 - 400 ml/min
Continuous working conditions	5 - 200 ml/min
Pump head inlet (standard)	4 mm OD, 3mm ID PTFE tubing, (M8x1 flat bottom)
Pump head outlet (standard)	1/8" (M8x1 coned)
Pumphead material	Stainless steel / titanium

Ordering details:

APD30MA	BlueShadow Pump 80P with 500 ml pump head (stainless steel)
APD60MC	BlueShadow Pump 80P with 500 ml pump head (titanium)

BlueShadow Pump 80P with 1000 ml pump head

Specifications

Pump specifications	
Pump head	1000 ml
Flow rate range	1 - 1000 ml/min
Maximum delivery pressure	1087 psi / 75 bar / 7.5 MPa to 350 ml/min, linear reduction: 75-50 bar of 350-600 ml/min, 725 psi / 50 bar / 5 MPa up to 1000 ml/min
Wetted materials	Aluminium oxide (Al ₂ O ₃), FKM, graphite fiber reinforced PTFE, PEEK, sapphire, stainless steel, titanium
Maximum viscosity	1000 mPa s
Flow rate increment	0.1 ml/min
Best working conditions	10 - 800 ml/min
Continuous working conditions	10 - 400 ml/min
Pump head inlet (standard)	9 mm OD, 7 mm ID PTFE tubing, piped
Pump head outlet (standard)	1/8" (M8x1 coned)
Pumphead material	Stainless steel / titanium

Ordering details:

APD30NA	BlueShadow Pump 80P with 1000 ml pump head (stainless steel)
APD60NB	BlueShadow Pump 80P with 1000 ml pump head (titanium)