

# P6.1L Pump with Eluent Tray

Optimized (U)HPLC pump for ECD

- **High accuracy and low pulsation at low  $\mu$ L flow rates**
- **Integrated degasser and solvent selector valve**
- **Automated piston wash**
- **UHPLC capability**

## Low pulsation

The P6.1L pump is designed for lowest pulsation in combination with electrochemical detection. Consequently under optimized conditions no noise is detectable from the piston stroke. The P6.1L pump features a dual piston design and an automated piston wash to remove traces of salt and other contaminants from the backside of the pistons, increasing the lifetime of the pump seals. The pump head can deliver flow rates in the low  $\mu$ L/min range up to 10 mL/min.

## Integrated multi-channel degasser

In the standard configuration the pump has a high efficiency multi-channel integrated degasser. The degasser (singular) uses Teflon AF amorphous fluoropolymer membrane for efficient gas permeation at every flow rate. In addition a solvent selection valve is present to be able to quickly select another solvent, for example to program a post-run wash step using a strong eluent.

## Gradient HPLC

The P6.1L pump is available with a quaternary Low Pressure Gradient (LPG), a binary High Pressure Gradient (HPG) and with a Bio-inert flow path. In all these models the high efficiency multi-channel degasser is included. High pressure operation up to 700 bar (10,000 psi), as used in Ultra-High Pressure Liquid Chromatography (UHPLC), is easily supported. The various pumps meet the requirements of just about every application.



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## Specifications - condensed

For a LP quaternary analytical HPLC pump with degasser

### Solvent delivery

Maximum delivery pressure	70 Mpa (700 bar, 10150 psi) up to 5 mL/min, 40 MPa (400 bar, 5800 psi)
Flow rate range	0.001 - 10 mL/min
Flow rate accuracy	± 1%, measured at 5 - 80% of flow range using ethanol
Flow rate precision	< 0.1 % RSD based on retention time at constant room temperature
Pulsation	< 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).
Gradient formation	low pressure quaternary mixing
Gradient range	0-100%; 1-99% (recommended)
Mixing volume	100 µL (optional 50 or 200 µL available)
Delay volume	160 µL (depending on mixer)
Piston seal washing	standard
System protection	soft start, Pmin and Pmax are programmable
Wetted materials	stainless steel, graphite fiber reinforced PTFE, FKM, PEEK, sapphire, zirconium oxide (ZrO <sub>2</sub> )

### Degasser module

Degasser channels	4 channels, Teflon® AF amorphous fluoropolymer membrane
Degasser maximum flow rate	10 mL/min
Degassing efficiency	< 0.5 ppm dissolved O <sub>2</sub> at 1 mL/min
Degassing chamber volume	480 µL volume per channel
Solvent applicability	universal, with the exception of hydrochloric acid and halogenated hydrocarbons - in particular hexafluoro-isopropanol (HFIP)
Wetted materials	PEEK, Tefzel®, Teflon® AF

### Technical parameters

Ambient conditions	temperature range: 10-40°C; 50-104°F; air humidity: below 90 % humidity (non-condensing)
Leak sensor	yes
Control	LAN; analog and event controlled

### General

Power supply	voltage range: 100 - 240 V, 50 - 60 Hz
Dimensions	361 x 208.2 x 523 mm (W x H x D)
Weight	12.7 kg

Part no	Description
194.APH30EA	P6.1L pump
194.APH30EA	P6.1L pump with degasser, solvent selection valve
194.APH34EA	P6.1L Pump LPG (quaternary) with degasser, mixer
194.APH35EA	P6.1L Pump HPG (binary) with degasser, mixer
194.APH64EB	P6.1L Pump LPG (quaternary), Bioinert with degasser, mixer
194.AZD00	E2.1L eluent tray



## Features

- Optimized for (U)HPLC/ECD
- Active pulsation dampening
- Integrated degasser and solvent selection valve
- CE, UL/CSA, RoHS compliant
- IQ, PQ and OQ available

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