

SPH1299™

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BETTER **SAMPLE CARE**

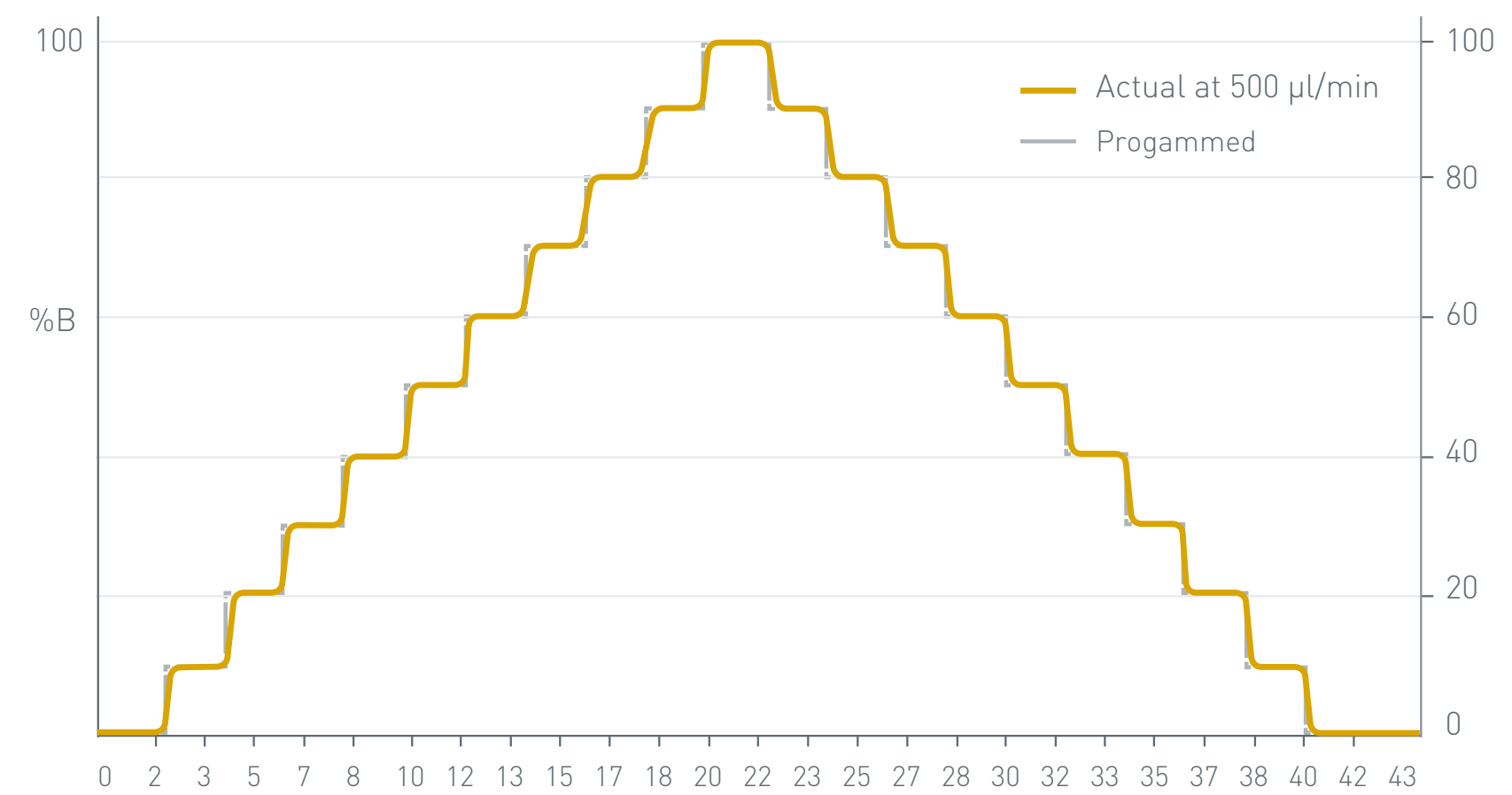
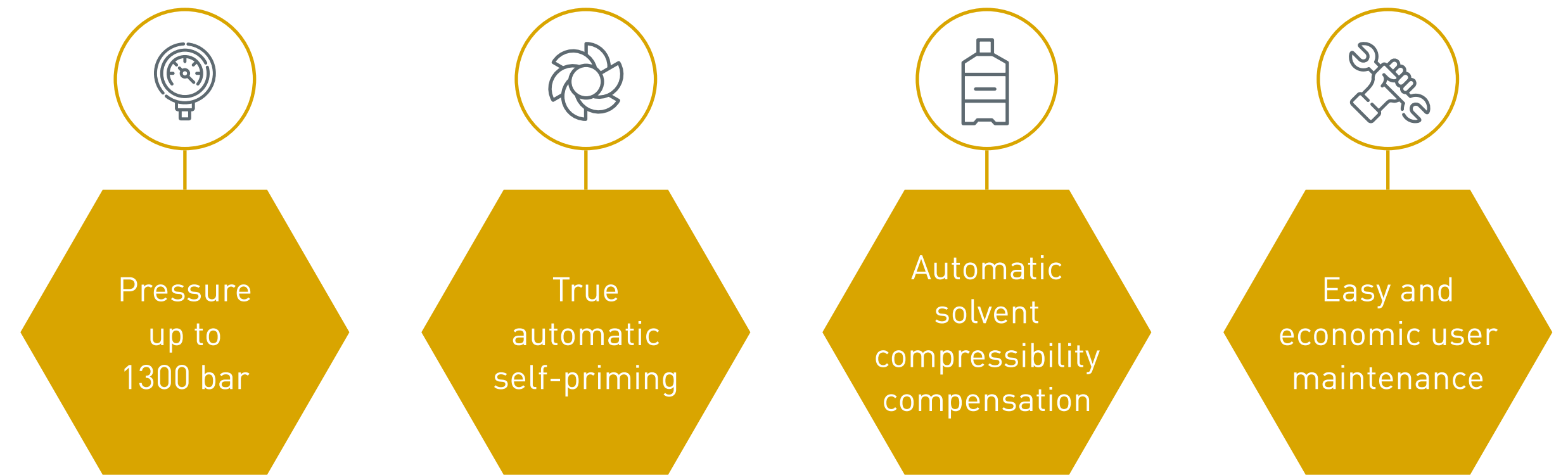
Robust, precise and easy to use

# SPH1299™

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## UHPLC Gradient Pump

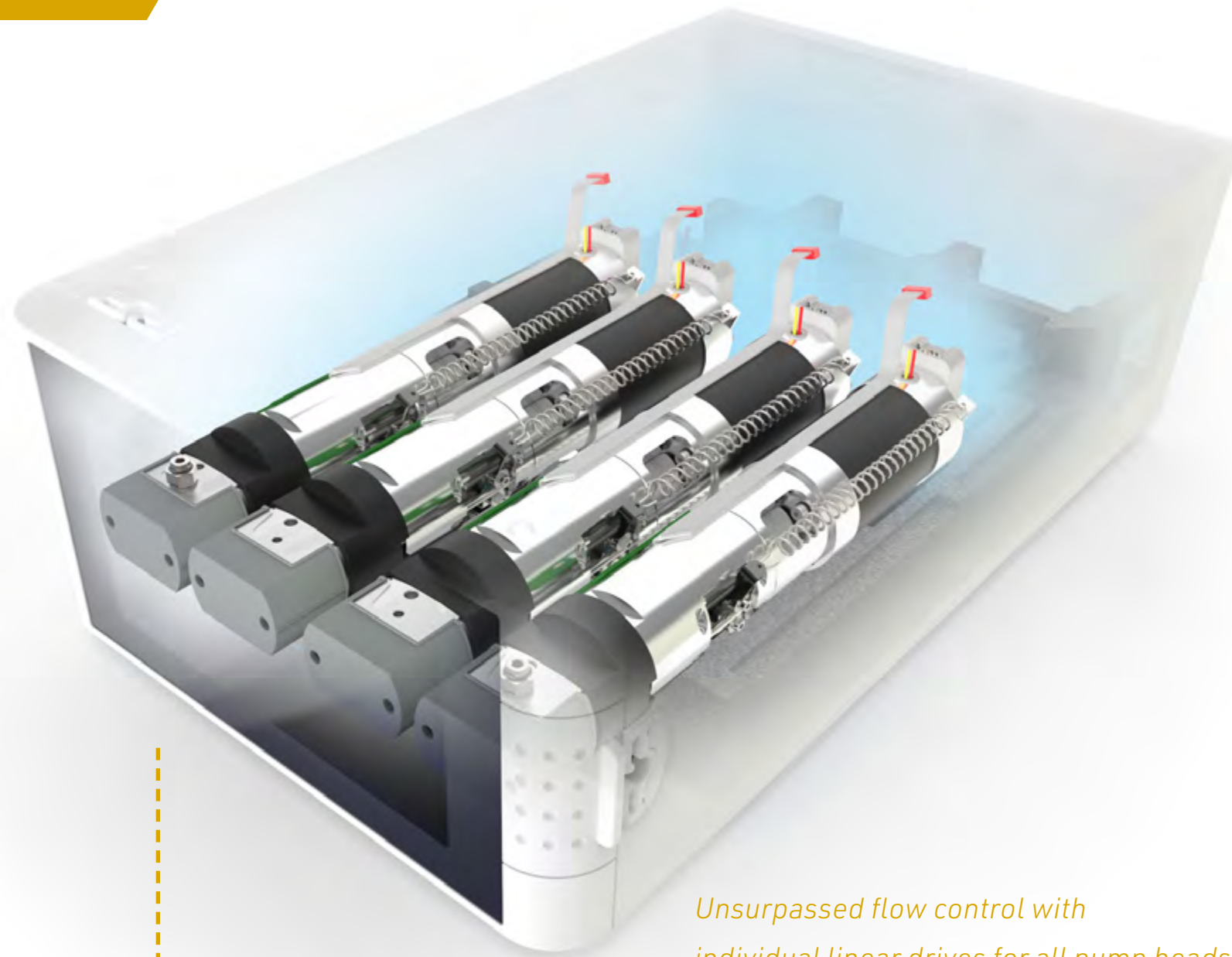
The SPH1299™ UHPLC pump is an advanced workhorse for robust, state-of-the-art UHPLC performance and beyond. Delivering ultra-precise UHPLC gradient flow up to 18,850 psi (1300 bar). Featuring truly automatic compressibility compensation, real self-priming and clearing plus simple maintenance, this pump will turn users into friends.



Rapid gradient response enables accurate control of steep gradients for ultra fast separations







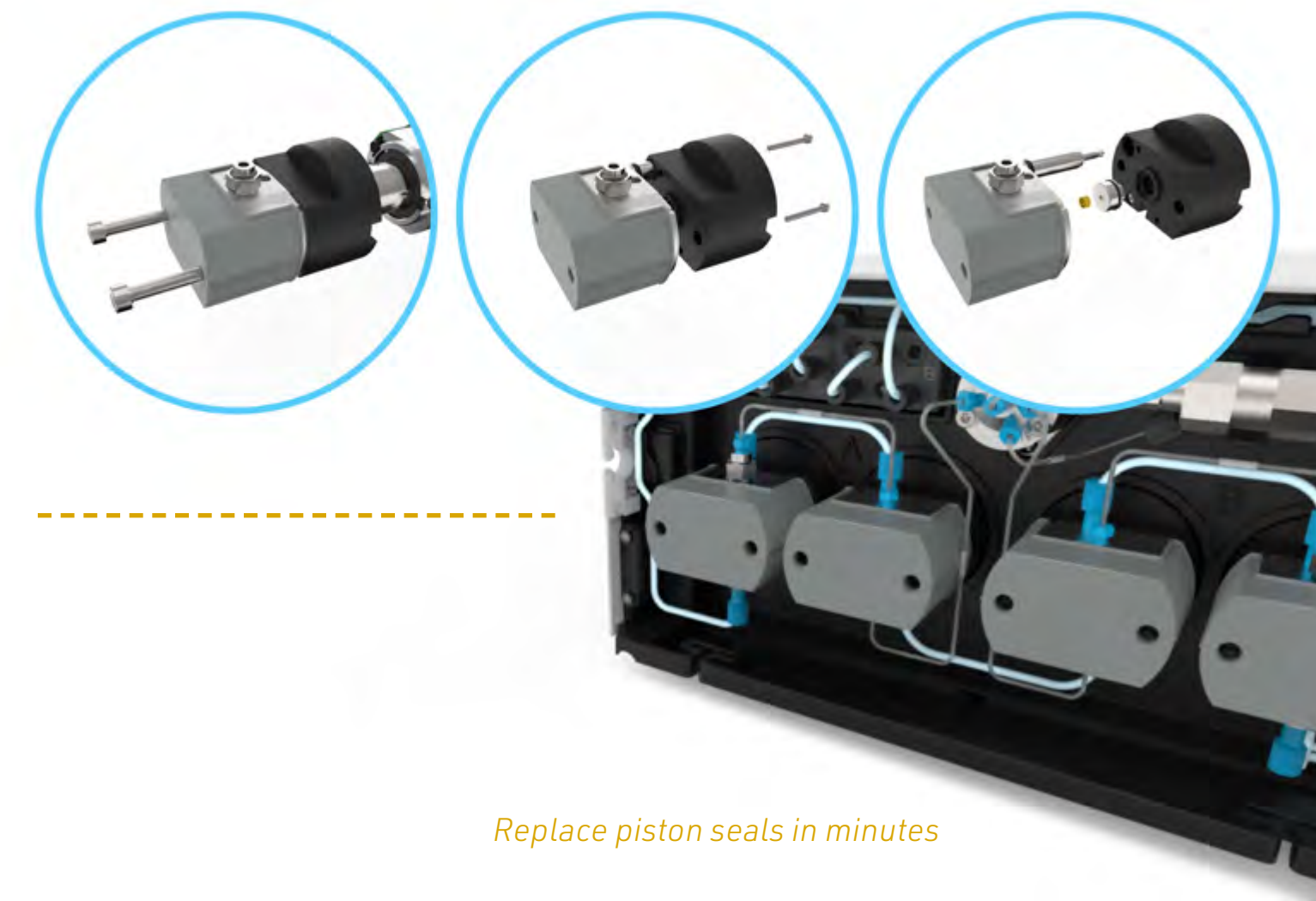
*Unsurpassed flow control with individual linear drives for all pump heads*

### Reliable performance

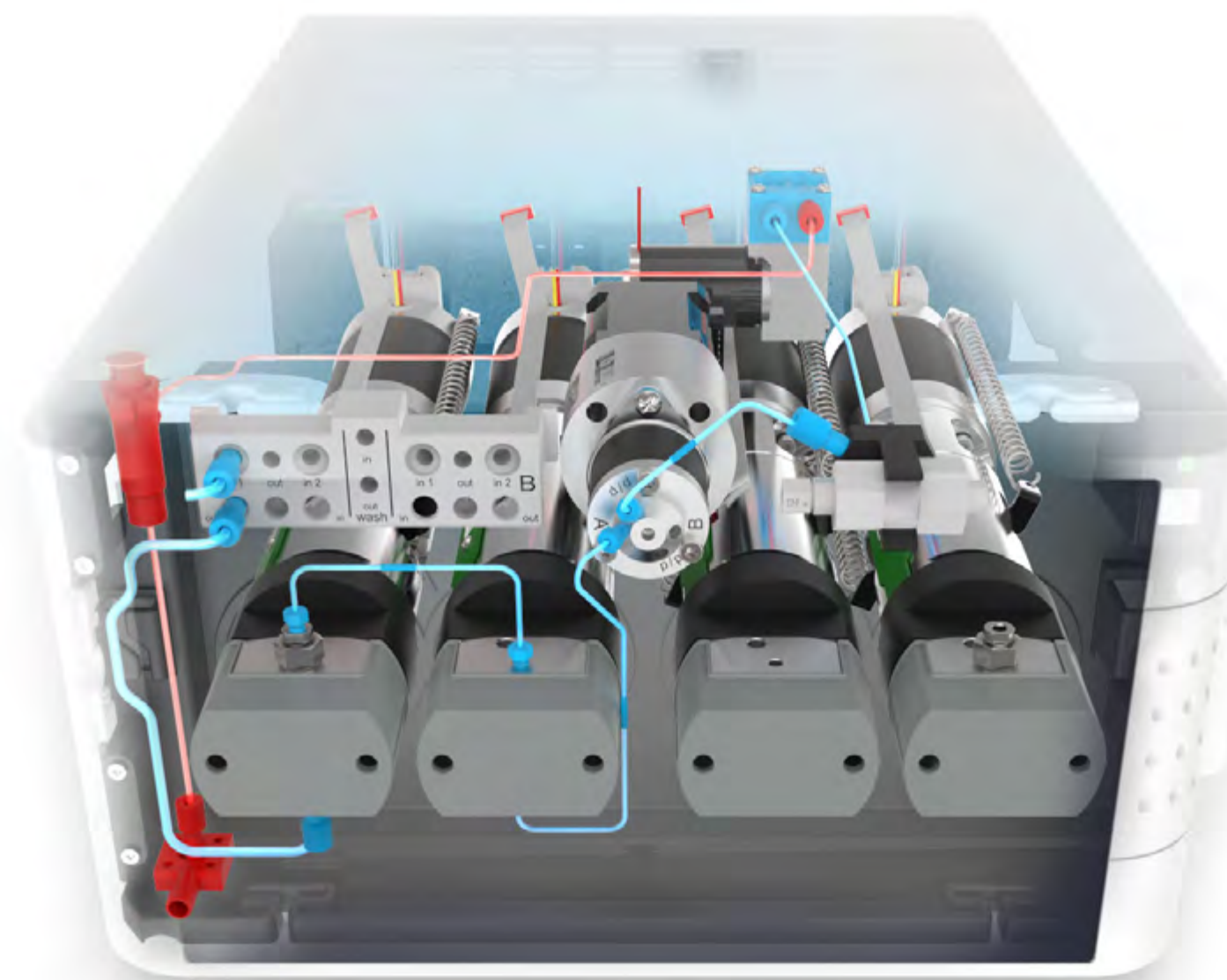
SPH1299™ is based on the reliable, proven concept of linear drive technology for two pairs of serially coupled pump heads. Each of the four pump heads is individually driven and controlled. This generates maximum freedom for flow control and pulse reduction. With intelligent novel flow control algorithms this freedom has been fully explored to create a stable and accurate flow, independent of solvent compressibility, pressure and flow rate. This results in solvent gradients with exceptional precision of both the solvent composition and the flow rate; i.e. in robust and precise gradient UHPLC.

### Easy and economic user maintenance

SPH1299™ has active piston backwash for longer lifetime of piston seals. This is very effective to increase up-time of the pump, but eventually a seal will need replacement. With this in mind, the pump head has been designed to facilitate easy disassembly and seal exchange. No need to remove covers or take the pump out of the UHPLC stack. No need, also, for expensive exchange of entire pump head/drive assemblies! Simply disconnect the pump head from its drive, remove the piston and replace the seal. In just minutes!



*Replace piston seals in minutes*



*Rapid automated self-priming with the integrated prime pump*

### True automatic self-priming

A novel automatic priming concept fully automates the cumbersome priming procedure. A built-in prime pump aspirates solvent through the pump heads when starting with empty solvent inlet lines. No need to help your pump with a syringe for awkward manual solvent aspiration. Using an electrically actuated purge valve, SPH1299™ can truly prime and purge all by itself in just a few minutes!

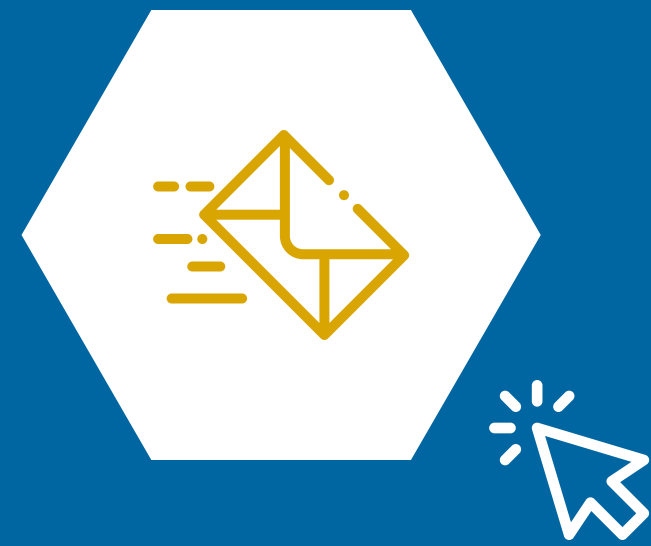


## Specifications

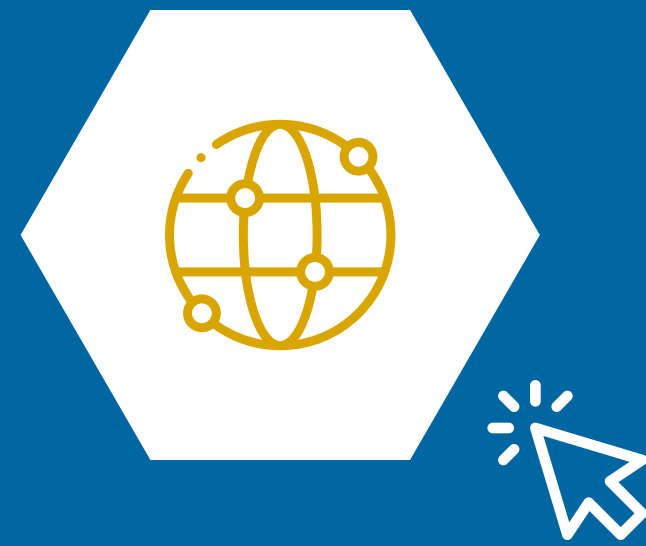
Pressure	
Pressure range	0 - 1300 bar / 0 - 18,850 PSI (0 - 2000 $\mu$ L/min)
Pressure ripple	0 - 1300 bar / 0 - 18,850 PSI (0 - 2000 $\mu$ L/min)
Flow	
Flow range	1 - 4000 $\mu$ L/min
Flow resolution	1.0 $\mu$ L/min increments
Flow precision	$\leq$ 0.075 % RSD or 0.005 minutes SD whichever is greater (water flow range 0.200 - 2.000 mL/min)
Flow accuracy	$\pm$ 1 % or $\pm$ 10 $\mu$ L/min whichever is greater (water flow range 0.200 - 2.000 mL/min)
Gradient	
Gradient range	0-100 %
Gradient composition accuracy	$\pm$ 0.5 % absolute from 5-95 % (flow range 0.200 - 2.000 mL/min)
Gradient composition precision	$\leq$ 0.15 % RSD or 0.01 minute SD, whichever is greater (flow range 0.200 - 2.000 mL/min)
Gradient delay volume	50 $\mu$ L when using 35 $\mu$ L mixer
Gradient profiles	Linear, concave and convex; 4 of each



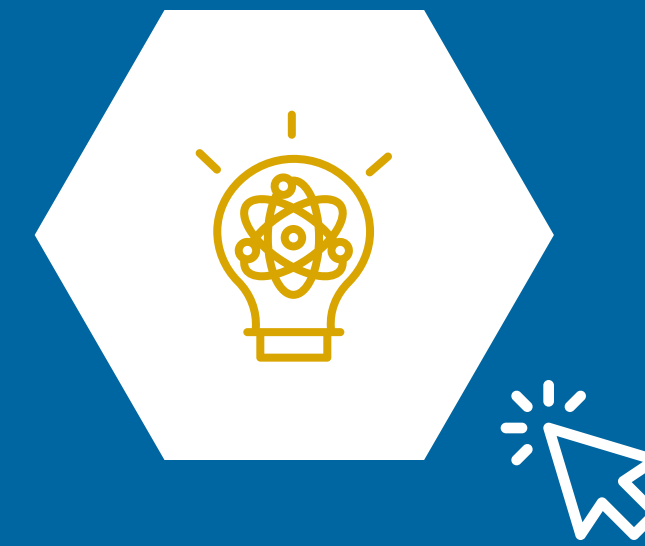




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