DATASHEET

Introducing the Peptide-Builder™

FAST-FLOW PEPTIDE SYNTHESIS FOR HIGH THROUGHPUT

Fast-Flow peptide synthesis combines the benefits of continuous flow with the robustness of Fmoc/tBu solid-phase peptide synthesis. The Peptide-Builder has been developed by a team of peptide chemists to make the benefits of Fast-Flow peptide synthesis available to every peptide chemist in a safe and easy to use automated system.

The key features of the Peptide-Builder are:

- Synthesis scale 0.05 to 1.00 mmol
- Unattended, automated synthesis of up to 16 peptides sequentially
- Short cycle time ~6 minutes per residue, includes coupling, deprotection and washing
- In process data is compiled into a comprehensive analytical report detailing the outcome of each synthesis
- Intuitive, easy to use software featuring Vapourtec's unique peptide sequence generator
- Fully automated synthesis including the addition of up to 3 side chains
- Small footprint, 68 cm (w) x 50 cm (d) x 90 cm (h)
- Reduced running costs with greater reagent efficiency

In 2017 Vapourtec developed the Variable Bed Flow Reactor (VBFR), the key technology enabling Fast-Flow peptide synthesis. The VFBR maintains the swollen resin at a constant packing density, minimising its volume, thereby eliminating channelling of reagents and solvents and maximising washing efficiency.

Benefits of Fast-Flow peptide synthesis compared with batch systems:

- Highest quality crude peptides only achievable using single-pass continuous flow
- Short synthesis times even with Oxyma/DIC
- Real time in-process data including precise timing and quantification of aggregation events
- Automated loading and unloading of resins and completed peptides
- Uniform heating, eliminates hot spots and reduce cycle times
- Optimised unnatural amino acids can be coupled

vapourtec fast-flow for peptides
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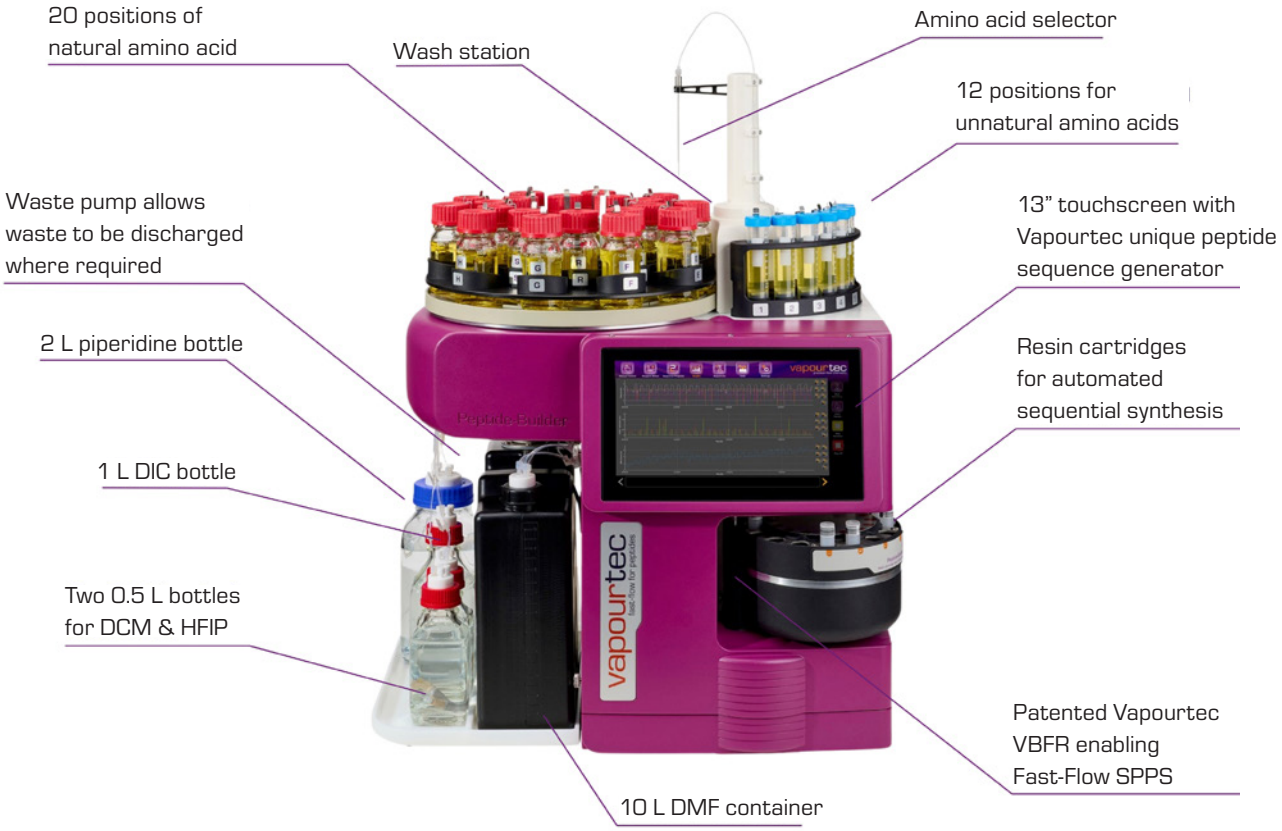
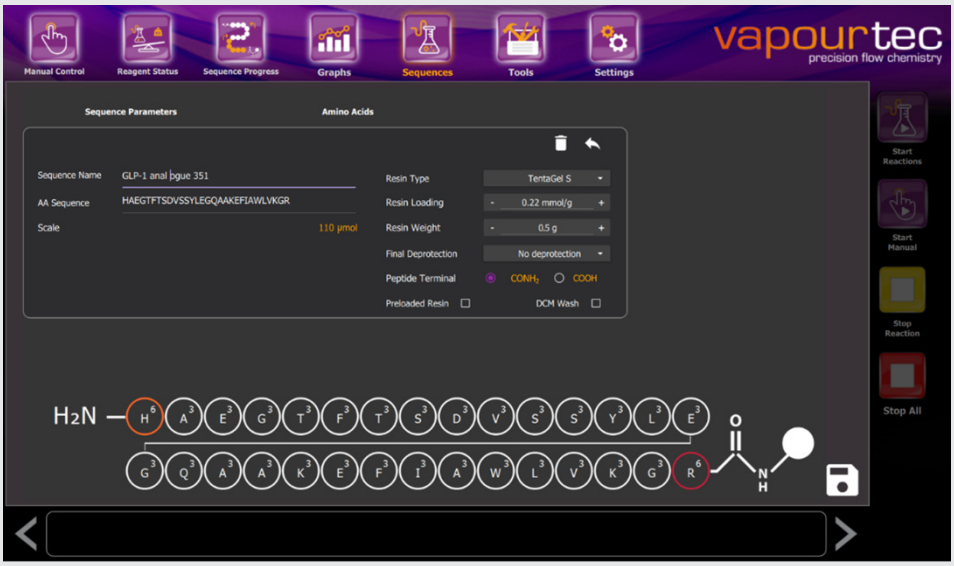


Unique software features

The Peptide-Builder comes with powerful peptide synthesis software, allowing users to simply type the alphabetic sequence (including sidechains), resin type, loading and mass, queue the synthesis, and the software does all the rest. The software automatically applies the optimum protocol for each amino acid including protocols to eliminate racemisation of residues, e.g. histidine or cyclisation, e.g. arginine.



On completion of the synthesis, the integrated SMTP server allows e-mail notifications to individual peptide chemists, e.g. notification of completion of peptide, with an analytical report attached. The Peptide-Builder is ideally suited for use as a shared resource within any peptide synthesis lab.

Technical Specifications

Software features	
Sequence generator	Type an alphabetic sequence of any length, up to 3 side chains
Coupling protocols	Five standard protocols, any protocol can be further customised
Deprotection protocol	Four standard protocols, customisable
Real time data	Temperature, resin volume, UV data and flowrates all in real time
Real time analysis	Reactor volume and UV data (AUC) is presented in real time
Remote notifications	A SMTP protocol is built into the software for user notification
Reagent monitoring	Amino acid, DIC, Piperidine and DMF quantities are continuously monitored

Synthesis scale range	0.05 mmol	0.20 mmol
Type of resin	Compatible with any polymeric resin (CTC, Tentagel, PS, etc.)	
Cycle time per residue	~ 6 minutes	~ 8 minutes
GLP-1 synthesis time	~3.5 hours	
Crude purity for a GLP-1 analogue	>80%	
GLP-1 total DMF usage	90 ml	360 ml
Number of syntheses	16 different syntheses can be queued	
Amino acid capacity	20 positions of 125 ml for natural amino acids and 12 positions of 25 ml for unnatural amino acids	
DMF capacity	10 L	
Piperidine capacity	2 L	
DIC capacity	1 L	
DCM capacity	500 ml	
HFIP capacity	500 ml	
Minimum flowrate	0.1 ml/min	
Maximum flowrate	40 ml/min	
Temperature range	Ambient to 90 °C	
Real time analysis	Resin volume change, UV/Vis and automated Fmoc AUC	
Waste management	Integrated, pumping to external container	
Remote notifications	A SMTP protocol is built in the software to email users	
Space required	68 cm (w) x 50 cm (d) x 90 cm (h)	

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About Vapourtec

Vapourtec is the world's leading manufacturer of laboratory scale flow chemistry instruments. Founded in 2003, Vapourtec has been at the forefront of the flow chemistry industry ever since.

Headquartered near Cambridge, UK, Vapourtec design and manufacture the R-Series and E-Series flow chemistry systems together with an exciting range of innovative Fast-Flow peptide synthesizers. Vapourtec instruments have empowered chemists throughout the world to further scientific discovery.

Trusted by scientists, chemists, and fine chemical manufacturers around the world, the modular R-Series system has revolutionized the way many deliver the research, chemicals, and products we all rely on. With an installation base of more than 1,000 instruments, resulting in being cited in over 1,250 peer reviewed scientific publications, we continue to support our customers across the globe with the world-class products and services with which Vapourtec has become synonymous.

World class **Innovative** **Precise**

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