The R-Series flow chemistry system

FLEXIBLE | PRECISE | AUTOMATABLE

R-Series software and touchscreen

Simple manual interface

R2xx pumping module

R4 reactor module

Large, bright display, visible from across the laboratory

4 independently temperature controlled reactor positions

Integral reagent tray

Continuously monitored pumps

Sample loops with large injection ports

Maximum versatility 12 different reactor types

Easily changed reactors

Compact footprint (smaller than A3)

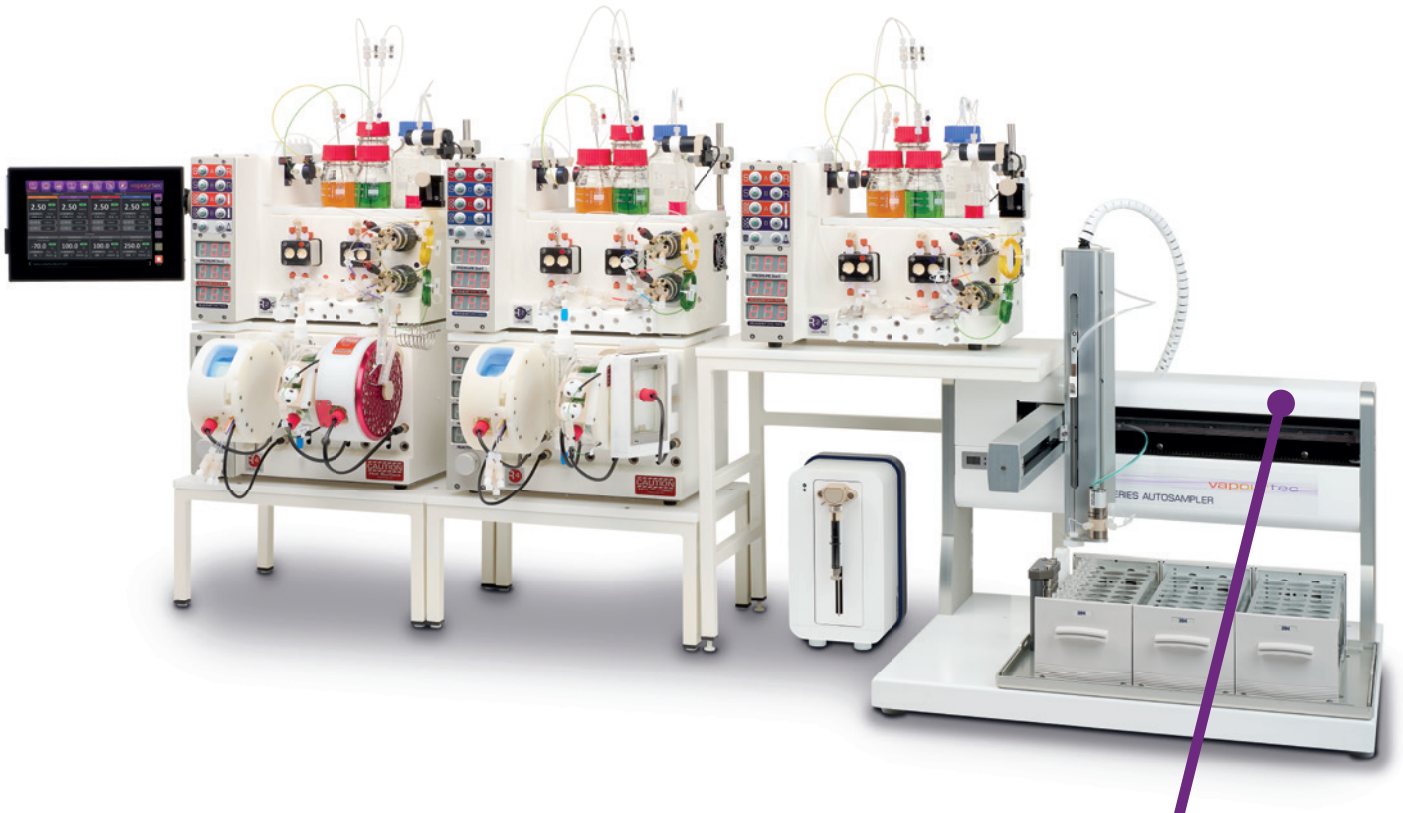
*RS-200 configuration shown above

vapourtec
precision flow chemistry

R-Series configurations

The R-Series is undoubtedly the most versatile, modular flow chemistry system available today. Developed for the scientist who needs:

- Best in class performance
- Cited in over 950 peer-reviewed publications
- Over 600 systems in daily use around the world
- Easy to learn and adaptable for many reactions or processes
- Reassurance of a system chosen by ALL of the top 25 global pharmaceutical companies



RS-600 Multiple step reactions

- Multiple step telescoped reactions
- Automated reagent loading and product collection
- Supplied with eight independent reactor positions, three R2C pump modules (6 pumps), autosampler and a wide range of reactors
- Vapourtec control software
- Can be extended up to 8 pumps

Trusted
The R-Series is used in more than 20 countries and has been cited by scientists in over 950 peer-reviewed publications.

Precise
The R-Series delivers best-in-class temperature control and continuously monitored flow rates for assured results and precision.

Flexible
The R-Series' modular design, with up to 8 individual reactors, makes it highly adaptable and customisable. An unlimited number of reactions can be queued for unattended execution, all with automatic fail-safe monitoring.

Connectivity
The R-Series software includes an optional OPC-UA server simplifying connectivity to other laboratory instruments. Python script examples are included, enabling integration into AI platforms.

RS-300 Multiple reactions automated

- Automated R-Series system with 4 pumps
- Ideal for med chem & process research
- Four position reactor heater
- Range of cooled and heated reactors
- Product collector
- Can be expanded as required
- Automated control

RS-400 Automated reagent addition

- R-Series system with 4 pumps and autosampler
- Ideal for library synthesis and catalyst screening
- Four position reactor heater
- Range of cooled and heated reactors
- Autosampler / collector
- Fully automated control

RS-500 Solid phase peptide synthesis

- Automated reagent loading and product collection
- Optimised for continuous flow SPPS
- Supplied with an R4 reactor, two R2C pump modules, variable bed flow reactor(VBFR), autosampler, SF-10 for precision back pressure management
- VBFR options for scales ranging from 0.05 mmol to 4 mmol

Choosing the right pump

Vapourtec supplies a comprehensive range of precision flow reactors covering a broad range of flow chemical applications.

All pumping modules use our unique continuous automatic monitoring system to monitor performance of pumps to ensure accurate reporting of flow rates, and shutdown safely in the event of a leak or blockage. In addition to Vapourtec manufactured pumps, 3rd party pumps are available including a syringe pump option suitable for precision low flowrate applications.

Pump model	Number of channels	Sample injection loops	Max reaction pressure	Strong acid resistance	Slurry pumping
R2	2	–	42 bar	–	–
R2 plus	2	✓	42 bar	–	–
R2 C	2	–	42 bar	✓	–
R2 C plus	2	✓	42 bar	✓	–
R2 HP	2	–	200 bar	–	–
R2 HP plus	2	✓	200 bar	–	–
R2S	2	–	10 bar	✓	✓
R2S plus	2	✓	10 bar	✓	✓
R2 HF	2	–	42 bar	–	–
R2 HF C	2	–	42 bar	✓	–

Reactor choice

The R-Series houses up to 8 separate reactors, each with individual temperature control. The reactors can be combined to increase the total reactor volume, or to deliver multi-step synthesis.

Each reactor is held securely within an insulated manifold. Changing reactors takes just seconds, with no tools required.

Standard tube reactor

- ✓ Excellent visibility of reactants
- ✓ Ambient to 150°C
- ✓ PFA, stainless steel or Hastelloy
- ✓ Strong acid resistance (with PFA)

High temperature tube reactor

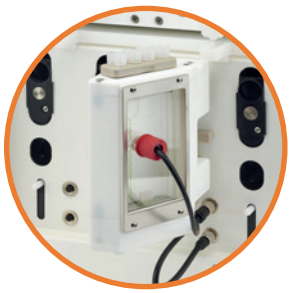
- ✓ Double insulated for safety
- ✓ Ambient to 250°C
- ✓ Stainless steel or Hastelloy
- ✓ Acid resistance (with Hastelloy)
- ✓ Options for 50 bar or 200 bar

Cooled tube reactor

- ✓ Good visibility of reactants
- ✓ -70°C to ambient
- ✓ Strong acid resistance
- ✓ Pre-cooling of 3 reagents
- ✓ Cooled mixers

Fixed bed reactor

- ✓ Ambient to 150°C
- ✓ Volume from 0.3 ml to 25 ml
- ✓ Ideal for scavenger resins, immobilised catalysts, solid-supported reagents
- ✓ Resistant to acids and bases
- ✓ Full visibility of reactor contents



Micromixer reactor

- ✓ For homogeneous reactions at small scale
- ✓ Excellent visibility of reactants
- ✓ -40°C to 150°C
- ✓ Borosilicate glass reactor chips

Photochemical reactor

- ✓ UV lamp or LED light sources
- ✓ Fully interlocked for safety
- ✓ -5°C to 80°C
- ✓ Up to 10 ml reactors
- ✓ Wavelength filters available

Electrochemical reactor

- ✓ Options for integrated or standalone operation
- ✓ Ability to heat and cool the reactor -10°C to +100°C
- ✓ Operation pressure up to 5 bar

Photocatalytic reactor

- ✓ UV reactions with immobilised catalysts
- ✓ Volume from 0.3 ml to 3 ml
- ✓ LED wavelengths 365 nm to 700 nm
- ✓ Temperature -40°C to 80°C

Variable bed flow reactor (VBFR)

- ✓ Resistant to strong acids & bases
- ✓ Fully automatic volume change
- ✓ Can be heated/cooled, 150°C to -20°C
- ✓ Volume range 0.3 ml to 20 ml

Heated mixing tube reactor

- ✓ Good visibility of reactants
- ✓ Ambient to 150°C
- ✓ PFA reactors only
- ✓ Strong acid resistance
- ✓ Pre-heating of 3 reagents

Large diameter tubular reactor

- ✓ Ideal for multi-purpose reactions
- ✓ 20 ml internal volume
- ✓ 3.2 mm bore reactor
- ✓ Full length static mixers
- ✓ Temperature range ambient to 150°C

Heated BPR

- ✓ For neat reactions
- ✓ For products with melting points < 120°C
- ✓ Allows BPR to be heated to 150°C

About Vapourtec

Vapourtec is the world's leading manufacturer of flow chemistry equipment. Founded in 2003 by Duncan Guthrie, Vapourtec has been at the forefront of the flow chemistry industry ever since.

Headquartered in Bury St Edmunds, UK, Vapourtec design and manufacture the R-Series flow chemistry system that has empowered chemists throughout the world to further scientific discovery.

Trusted by academics, chemists and manufacturers around the world, the modular R-Series system has revolutionised the way many deliver the research, chemicals and products we all rely on today.

World class

Innovative

Precise

vapourtec
precision flow chemistry

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