radleys
innovations for chemistry

interchim

Improving the productivity of your chemistry

Innovative tools for synthesis, process development, work-up, purification and evaporation...

Spring 2011
Product Guide - Vol 6

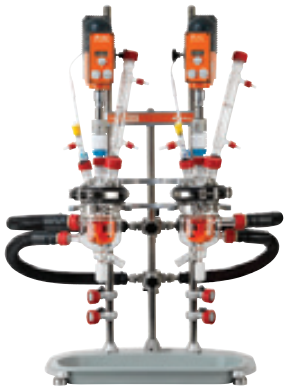
www.radleys.com

www.radleys.co.uk www.lara-clr.com

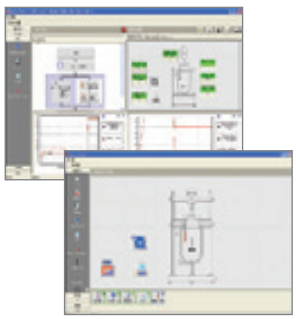
Improving the productivity of your chemistry

What's NEW?

Carousel 6 Plus - Page 10



Reactor-Ready Duo - Page 25



Control Software - Page 27

Data Hub - Page 27

Heat-On PTFE Covers - Page 5

Innovations for Chemistry...

Radleys specialise in supplying innovative chemistry tools for scientists, allowing them to undertake their research faster and more effectively...

Radleys have been manufacturing scientific glassware and supplying laboratory instruments for over 45 years. Our customers include leading industrial and academic research facilities around the world. In the rapidly changing world of science, we work hard to respond to the needs of our customers by investing in new product development that will allow them to remain at the forefront of chemistry research. Our specific areas of expertise are focused on equipment for chemical synthesis, process development, work-up and evaporation.

Radleys products provide...

- Faster reactions, increased productivity and lower labour costs
- Better yields and improved purity
- Improved safety
- Improved efficiency and less waste
- Reproducible results - control, record and log

radleys innovations for chemistry

Our core activities:

Parallel & Chemistry Tools	Single and parallel reaction blocks for heating, cooling, stirring and shaking of single or multiple reactions.
Jacketed Reaction Systems	Standard and custom glass reaction systems; single and parallel, designed to meet your needs.
Lab Reactors	Innovative lab reactors with a host of novel features and optional software control.
Instrumentation & Consumables	Circulators, thermoregulators, rotary evaporators, overhead stirrers, hotplates, vacuum pumps, syringe pumps, consumables, glassware etc
Servicing, Installation & Training	Full in-house and on-site installation, training and servicing for our full range of products.

Glassware manufacturing...

Unlike most of our competitors, Radleys have been manufacturing scientific glassware for over 45 years. Our team of engineers and glassblowers are proud to design, manufacture, assemble and test our glassware systems, on-site in the United Kingdom.

Partnerships...

Radleys have an exclusive partnership with both Huber and Heidolph in the British Isles and operate business division for 'Huber UK' and 'Heidolph UK'.

huber UK high precision thermoregulation

Heidolph UK Research made easy

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Heating, Cooling & Stirring Blocks

0.2ml to 5 litres

Heat-On Block System
- 1 or 2 positions
- 10ml to 5 litres
- Heating
- Magnetic or Overhead Stirring

Page 5

Cool-It Insulated Bowls
- 1 positions
- 10ml to 5 litres
- Heating
- Magnetic or Overhead Stirring

Page 7

1 and 2 positions

StarFish Work Station
- Up to 40 positions
- 0.5ml to 500ml
- Heating
- Magnetic Stirring

Page 6

Up to 40 positions

Hotplates & Overhead Stirrers

Carousel Stirring Hotplates
- 800 Watt
- Heating: 20 to 300°C
- Speed range: 100 - 1400rpm

Page 4

RS Overhead Stirrers
- Speed range: 40 - 2000rpm
- Digital & analogue
- Powerful torque

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Parallel or Multiple Position Reaction Stations

5ml to 250ml

Carousel 6 Plus Reaction Station
- Up to 6 positions
- 5ml to 250ml
- Heating
- Magnetic Stirring

Page 10

Cooled Carousel 6 Plus Reaction Station
- Up to 6 positions
- 5ml to 250ml
- Cooling
- Magnetic Stirring

Page 11

Tornado Overhead Stirrer
- Add-on module for Carousel 6
- 50 to 250ml
- Heating
- Mechanical Stirring

Page 12

Storm Work Station
- Add-on module for Carousel 6
- For controlled steady state heating & cooling

Page 15

Breeze Work Station
- Add-on module for Carousel 6
- For precise control by solution temperature

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Up to 6 positions

1ml to 20ml

Carousel 12 Plus Reaction Station
- Up to 12 positions
- 1ml to 20ml
- Heating
- Magnetic Stirring

Page 8

Cooled Carousel 12 Plus Reaction Station
- Up to 12 positions
- 1ml to 20ml
- Cooling
- Magnetic Stirring

Page 9

Carousel Work-Up Station
- Up to 12 positions
- SPE, filtration, phase separation, and liquid/liquid extraction.
- 70ml columns

Page 19

Up to 12 positions

0.2ml to 20ml

Metz Heater Shaker Reaction Station
- Up to 96 positions
- 0.2ml MTP to 20ml
- Heating
- Shaking

Page 21

Up to 96 positions

0.5ml to 7ml

GreenHouse Plus Parallel Synthesiser
- Up to 24 positions
- 0.5ml to 7ml
- Heating
- Magnetic Stirring

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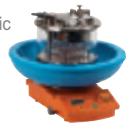
Cooled GreenHouse Plus Parallel Synthesiser
- Up to 24 positions
- 0.5ml to 7ml
- Cooling
- Magnetic Stirring



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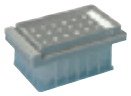
Titan 24 & 96 Well Resin Loaders
- Standard 24 or 96 well arrays
- Load GreenHouse blocks & micro titer plates



Page 20

GreenHouse Work-Up Station
- Up to 24 positions
- SPE, filtration and phase separation.
- 3 and 6ml columns

Page 18

GreenHouse Blowdown Evaporator
- Up to 24 positions
- 0.5ml to 7ml
- Vials, tubes and micro titer plates

Page 17

Up to 24 positions

Lab Reactors & Jacketed Reaction Systems

100ml to 50 litres

Lara Controlled Lab Reactor
- Single position
- 100ml to 10 litres
- Overhead stirring

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1 position

Reactor-Ready Lab Reactor
- Single position
- 100ml to 5 litres
- Rapid vessel exchange
- Overhead stirring

Page 24

Reactor-Ready Duo Lab Reactor
- Two position
- 100ml to 5 litres
- Rapid vessel exchange
- Overhead stirring

Page 25

Up to 2 positions

Custom Jacketed Reaction Systems
- Single or multiple vessels
- 100ml to 50 litres
- Overhead stirring

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Single or multiple

Software

Control Software
- Log & control
- Integrate 3rd party devices

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Single or multiple

Improving the productivity of your chemistry

Carousel™ Stirring Hotplates

Carousel stirring hotplates feature 800 Watt heating power, chemically resistant top plates and are available in three models to suit your chemistry and budget...

Common Features...

- 800 Watt heating power.
- Heating range: 20 to 300°C.
- Speed range: 100 - 1400rpm.
- Chemically resistant Kera-Disk top plate.
- 135mm Top plate diameter.
- 3 Year Warranty.

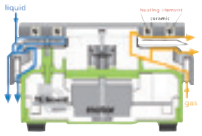
300°C

Carousel Standard

Carousel Tech

BEST SELLER

Carousel Advanced



Hermetically Sealed Housing for long life

Carousel Standard Stirring Hotplate...

- Large analogue knobs for convenient speed and temperature setting.
- Stirrer magnets provide superior coupling at high speeds/viscosities.
- Stirring features a smooth ramp to set speed, prevents decoupling.
- A separate on/off switch for heating prevents unintentional heat-up.
- Illuminated ON/OFF button is for visual control.
- Safety circuit switches off heating if the set temp. is exceeded by 25°C.
- Extra safety control circuit and hotplate cut-out by two independent temperature sensors.
- Optional plug-in Carousel Temperature Controller with stainless steel or glass temperature sensor for external control.
- Accuracy with Temperature Controller: ± 1 K

Carousel Tech Stirring Hotplate...

All the features of the Standard, plus digital display of speed and temp.

- Digital display of temperature and speed with both set and actual values.
- Residual heat indicator provides a clear warning of when the top plate surface is above 50°C, minimising accidents.
- Optional plug-in Carousel Temperature Controller.

Carousel Advanced Stirring Hotplate...

All of the above features of the Carousel Tech, plus:

- RS232 interface for optional PC control.
- Speed range: 30 - 1400rpm, with superior accuracy: ± 1 %.
- Optional Pt1000 temperature sensor with stainless steel or glass coated probe: with ± 0.2 K accuracy.
- External sensor control, if temperature sensor is not immersed in the medium, heating is switched off.
- Independent safety circuit switches off the heating at an operator pre-determined value between 10°C and 25°C above set point.

Carousel Temperature Controller...

- Fuzzy logic microprocessor control ensures heating with no overshoot.
- Digital display for set and actual temperature.
- Control range: ambient temperature to +300°C.
- Displays temperatures from -50°C and +300°C
- MAX-button displays temperature at which the item automatically is switched off.

Carousel Temperature Controller

Includes 3 YEAR Warranty

	Carousel Standard	Carousel Tech	Carousel Advanced
Speed, max (rpm)	1400	1400	1400
Speed accuracy (%)	± 2	± 2	± 1
Display	-	Digital	Digital
Analogue/digital interface	-	-	Yes
Heating power (W)	800 (600 for 115v)	800 (600 for 115v)	800 (600 for 115v)
Hotplate temperature (˚C)	20 - 300	20 - 300	20 - 300
Accuracy temperature setting (K)	± 5	± 1	± 1
External temperature sensor	Carousel Temperature Controller	Carousel Temperature Controller	Pt 1000
Temp. accuracy with external temp. sensor (K)	± 1	± 1	± 0.2
Sensor breakage protection	With Temperature Controller	With Temperature Controller	With Pt 1000
Temperature control	Electronic	Electronic	Microprocessor
Temperature accuracy hotplate (K)	± 5	± 5	± 5
Safety circuit hotplate (˚C)	25˚C over hotplate temperature	25˚C over hotplate temperature	10˚C - 25˚C over nominal temperature
Stirring capacity, max (water)	20	20	20
Plate diameter (mm)	ø 135	ø 135	ø 135
Plate material	Silumin with ceramic coating	Silumin with ceramic coating	Silumin with ceramic coating
Weight (kg)	2.9	2.6	2.6
Dimension l x w x h (mm)	173 x 277 x 94	173 x 277 x 94	173 x 277 x 94
Protection class	IP 32	IP 32	IP 32
Supply voltage	230 V/ 50 Hz or 115 V/ 60 Hz	230 V/ 50 Hz or 115 V/ 60 Hz	230 V/ 50 Hz or 115 V/ 60 Hz

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Heat-On™ Block System - *the safer option to oil baths*

Simply the safest, fastest, most efficient way to heat and stir a round bottom flask from 10ml to 5 litres...

Heat-On Multi-well Block Holder with 50ml and 100ml flask inserts

Features...

- Replace messy oil baths, heating mantles and avoid spills.
- Make your chemistry safer, cleaner and faster.
- Solid aluminium blocks provide even heating.
- Lightweight design allows rapid heating.
- Unique well design eliminates cracking of flasks.
- Blocks feature two probe holes and optional lifting handles.
- Use up to 260˚C.
- Also accepts Florentine Flasks.

Not all blocks designs are the same...

Test results show that Heat-On heats up to 66% faster and uses 30% less energy than other brands of block.

Visit radleys.com to download the Application Bulletin

It is widely accepted that oil baths and heating mantles are no longer the preferred choice of chemists to heat round bottom flasks. The risk of oil fires and injury from hot oil spills, plus the mess and cost associated with the use of oil means that oil baths no longer represent safe working practice in labs. Heating mantles are expensive, difficult to clean, do not respond well to spills and often create hot spots when heating. Hence, scientists are increasingly turning to specially designed aluminium blocks located on stirring hotplates to heat standard round bottom flasks.

260˚C

250ml Heat-On block

Fluoropolymer coating gives superb chemical resistance...

Heat-On blocks have an innovative fluoropolymer coating that offers outstanding chemical resistance to most solvents, acids and alkalis. The coating also extends the product life, is easy-to-clean and reduces heat up times.

Anodised option...

Heat-On blocks are also available with a lower cost anodised finish if preferred.

Heat-On accepts 10ml, 25ml, 50ml, 100ml, 150ml, 250ml, 500ml, 1 litre, 2 litre, 3 litre and 5 litre round bottom flasks...

500ml Heat-On block

Multi-well block holder and inserts...

Designed to hold either one or two inserts for flasks or tubes. The inserts are available for 10ml, 25ml, 50ml, 100ml and 150ml flasks as well as multi-tube inserts for 16, 20 and 24mm tubes. Flask inserts also feature cut-away sides for use with two or three neck flasks.

1 Litre Heat-On block

Heat-On™ PTFE Safety Covers

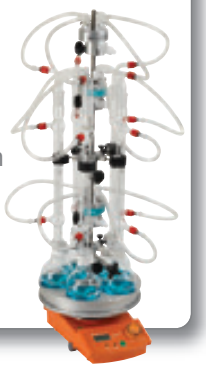
These innovative, solid PTFE Safety Covers reduce the risk of users touching the 'hot' Heat-On block and provide the added benefit of lowering energy consumption...

- Reduces the temperature of exposed surface areas by up to 50%
- PTFE insulation reduces energy consumption by 15%
- Chemically resistant PTFE withstands temperatures up to 260˚C
- Helps prevent accidental spills of solvents on to hot surfaces
- Fits easily over existing Heat-On Blocks
- PTFE Covers for all popular Heat-On sizes

5 Litre Heat-On block

Applications...

- Stirring
- Heating
- Synthesis
- Concentration
- Extraction
- Distillation
- Digestion



StarFish™ Multi-Experiment Work Station - *the space saver*

StarFish is a modular, general purpose heating and stirring work station...

Whether you just want to heat and stir, or perform more complex experiments, StarFish really can make your life easier and improve the productivity of your lab.

260°C

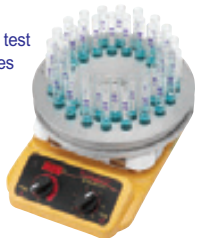
Features...

- Fits all leading brands of stirring hotplate.
- Accepts vials, test tubes, beakers and flasks.
- Set-up vessels individually or in parallel.
- Powerful stirring and rapid heating.
- Universal 3 and 5-way clamps to hold glassware.
- Water Manifolds - distribute cooling water to up to five condensers, simultaneously.
- Gas/Vacuum Manifolds - allow gas from a single source to be distributed to up to five positions.
- MonoBlocks - single blocks with multiple wells.
- PolyBlocks - 5 per system mix'n'match any combination of vessel.

Vials of all sizes

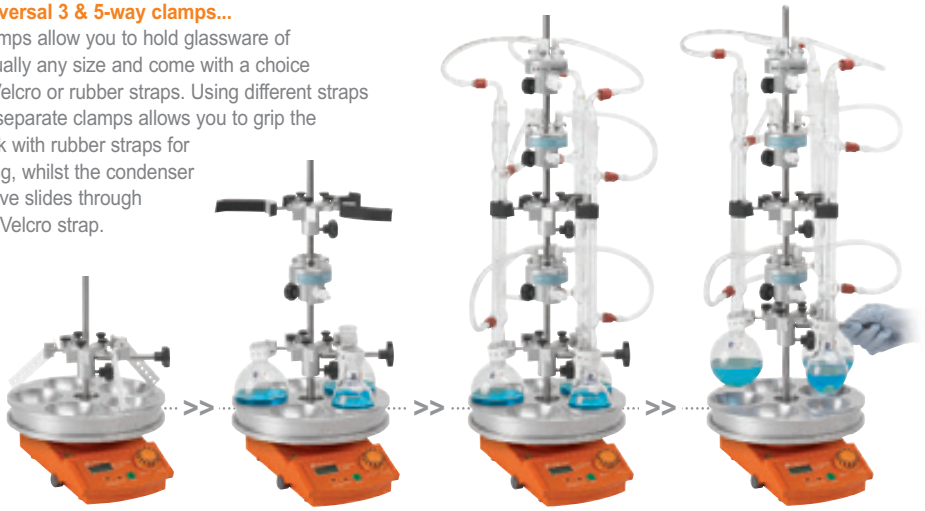
Larger test tubes

Small test tubes



Universal 3 & 5-way clamps...

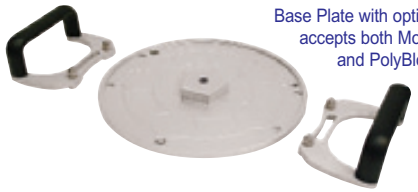
Clamps allow you to hold glassware of virtually any size and come with a choice of Velcro or rubber straps. Using different straps on separate clamps allows you to grip the flask with rubber straps for lifting, whilst the condenser above slides through the Velcro strap.



Use the StarFish components to build the system you want...

Water and Gas/Vacuum Distribution Manifolds

Base Plate with optional handles accepts both MonoBlocks and PolyBlocks



Universal 3 and 5-way Clamps

MonoBlocks for 3 or 5 round bottom flasks

Wide choice of PolyBlocks

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Cool-It™ Bowl - *the unbreakable dewar*

The safe and efficient way of cooling and stirring round bottom flasks to -78˚C...

Cool-It replaces fragile glass dewars, unstable plastic bowls and keeps your chemistry colder for longer. The compact and virtually unbreakable Cool-It insulated bowls are designed to fit onto a standard stirring hotplate to cool and stir round bottom flasks, beakers, test tubes etc.

Cool-It keeps it cooler for longer...

- The excellent insulation qualities of the Cool-It keep your sample cooler for longer.
- Cool-It will keep your sample below -70°C for up to 5 times longer than a plastic bowl.
- Cool-It will keep your reactions below -70°C for twice as long as a glass dewar.

Unbreakable...
Cool-It bowls are manufactured from a robust, chemically resistant HDPE casing encapsulating a high quality insulated foam core. The combination of tough composite materials not only provides excellent insulation but (unlike fragile glass dewars) is virtually unbreakable.

Easy pour spout and handle...
Cool-It's unique non-drip spout and ergonomically designed handle makes the disposal of solvents much safer and easier; avoiding accidental spillages and creating a safer working environment.

Large and small bowl options...
Cool-It is available in two sizes of bowl. The small Cool-It bowl for flasks up to 400ml, and large Cool-It bowl for flasks up to 2 Litres. Both sizes have their own lid.

Optional lid increases cooling time by 20%...
The two piece lid, which is easily fitted once your flask is in place, will help to keep your reaction cool for up to 20% longer, minimising condensation and ice formation on your flask (maintaining visibility of the contents) and prevents spitting from the cooling mixture.

Small Cool-It bowl for flasks up to 400ml

Protects your stirrer and minimises spills...
Cool-It minimises frost on the outer surfaces, protecting your stirrer from moisture ingress. It is also designed to fit securely onto the top plate minimising accidental spills and the risk of the bowl being knocked off the top plate.

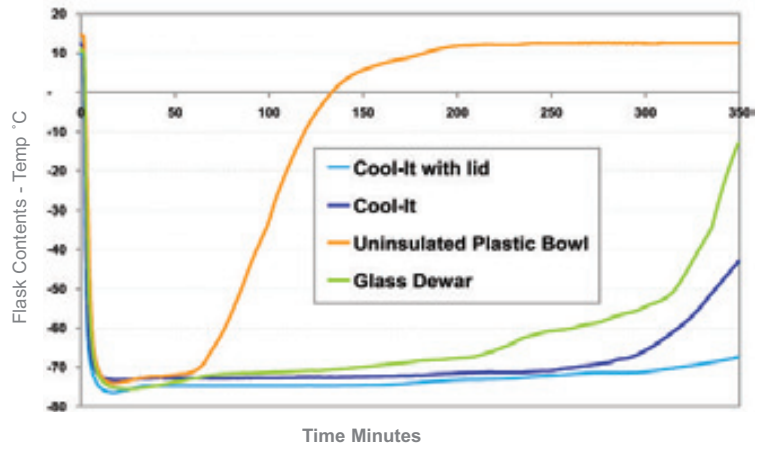
Cool-It fits on to all popular brands of stirring hotplate...
Cool-It bowls are suitable for use with all stirring hotplates with a circular top plate of 135mm (e.g. Radleys, IKA, Eyela, etc) or 145mm (e.g. Heidolph).

Cool-It accessories...
A useful range of accessories are available including, clamp, stand, stirring hotplate, digital thermometer, scoop, protective gloves, apron and face shield.

Large Cool-It bowl for flasks up to 2 litres

Cool-It V's Glass Dewar

Acetone & Dry Ice, 250ml flask, 100ml acetone



Cool-It accepts all shapes and sizes of round bottom and florentine flask up to 2 litres...

Easy pour design with spout and handle

Simple & convenient, the Carousel Work-Up Station will reduce post synthesis bottle-necks...

Work-Up Station for parallel or sequential work-up of 12 samples, using filtration, phase separation, liquid/liquid extraction or SPE.

Carousel 12 Plus Reaction Station™

220˚C

The patented Carousel simultaneously heats/cools, stirs and refluxes multiple samples under an inert atmosphere...

The Carousel 12 Plus is an effective personal synthesis station for parallel solution phase chemistry and solid supported reagent based synthesis.

Features...

- Accepts up to 12 glass tubes with a reaction volume from 1ml to 20ml.
- Powerful, even stirring - fits on to a Carousel stirring hotplate.
- Rapid heating to 220˚C and cooling to -78˚C.
- Quick to set-up and easy to use
- Easy viewing of tube contents during experiments.
- Removable water cooled reflux head.
- Perform reactions under an inert atmosphere.
- Fluoropolymer coating for chemical resistance and easy cleaning.
- PTFE caps feature a 'quick-thread' for fast attachment to glass tubes.
- Removable reflux head allows reaction tubes to be transferred between heated base, cooled base or stand.

The world's most popular parallel synthesiser

Quick Release inlet/outlet for vacuum and gas, combined with a radial gas distribution system and gas-tight caps allow reactions under an inert atmosphere.

Heated directly by the stirring hotplate; Digital temperature control ±0.5˚C.

Chemically resistant Easy-On PTFE caps feature a quick-thread for fast attachment to the glass tubes and push-on connections to the s/steel gas outlets.

Quick release water couplings with cut-off valves for ease of connection to cooling water supply.

Water cooled aluminium reflux head provides efficient refluxing within individual reaction tubes.

Accepts upto 12 tubes with reaction volume of 5 to 20ml (1ml with reduced volume tubes).

Fluoropolymer coating for heightened chemical resistance and easy cleaning.

Unique removable fluoropolymer insulation plate helps insulate the heated base for faster heating and energy savings of up to 36%.

Easy to operate and set-up with minimal training time. No electrical or moving parts ensures maintenance free operation.

Base design improves heat transfer and provides energy savings. Maximum operating temperature 180˚C (220˚C for short periods).

Utilises the single rotating magnetic field of the hotplate stirrer to stir all the positions evenly and powerfully.

Visibility slots allow easier viewing of tube contents. Easy to rotate round design gives access to all tubes with no need to lean into the fume cupboard.

Carousel Stirring Hotplate offers higher temperature, more powerful stirring and digital control.

Rare earth cross shaped stirring bars for more vigorous stirring and a deeper vortex, without jamming.

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Cooled Carousel 12 Plus Reaction Station™

Offering cost effective low temperature parallel synthesis down to -78˚C...

The innovative Cooled Carousel 12 Plus reservoir is designed to accept the removable reflux/inerting head from the Carousel 12 Plus; allowing for the reaction tubes to be easily and rapidly transferred between heating and cooling bases.

-78˚C

Features...

- Simultaneously performs up to twelve cooled and stirred reactions to -78˚C
- Powerful, even stirring - reservoir fits on to a Carousel stirring hotplate.
- Robust HDPE cooling reservoir is compatible with a wide range of cooling mixtures, including dry-ice/acetone for manually controlled cooling from ambient down to -78˚C.
- Features a non-drip spout and handle for disposal of waste solvents.
- Insulated foam core maintains low temperatures for long periods, whilst protecting the stirrer from freezing. Also reduces condensation and ice formation on outer surfaces.
- HDPE lid keeps your reaction cooler for longer, minimises ice formation on your tubes (maintaining visibility of the contents) and prevents spitting from the cooling mixture.
- The robust HDPE reservoir is virtually unbreakable.

Upgrade your Carousel to perform cooled chemistry...

Transfer the reflux/inerting head to the Cooled Reservoir.

Robust HDPE cooling reservoir is compatible with a wide range of freezing mixtures including dry-ice/acetone for manually controlled cooling from ambient to -78˚C.

Central inlet/outlet for vacuum and gas, combined with a radial gas distribution system and gas-tight PTFE caps, allows reactions under an inert atmosphere.

PTFE caps feature a 'quick-thread' for fast attachment to the glass tubes and 'easy-on' push connections to the stainless steel gas outlets.

Simultaneously performs up to twelve cooled and stirred reactions to -78˚C, with a working volume of 1ml to 20ml per tube.

Utilises single rotating magnetic field of the stirrer to stir all the positions evenly and powerfully.

Provides 12 cooled and stirred glass reaction positions, with a reaction volume of 5 to 20ml (1ml with the reduced volume tubes)

Insulated foam core maintains low temperatures for long periods, whilst protecting the stirrer from freezing. Also reduces condensation and ice formation on outer surfaces.

Features a unique non-drip spout and ergonomically designed handle for easy disposal of waste solvents.

The robust HDPE reservoir is virtually unbreakable.

Carousel Stirring Hotplate powerful stirring with digital control.

nsfer head between bases...

Carousel 12 Plus Stand

The Carousel stand is designed to support the reflux/inerting head either with or without reaction tubes...

The heavy duty metal stand is fluoropolymer coated for improved chemical resistance and ease of cleaning. The integral drip tray catches any dripping condensation from tubes and gives excellent stability.

The Tornado combines with the Carousel 6 to provide powerful, controlled mechanical stirring of up to six round bottom flasks

Offering unrivalled stirring for both viscous samples and for the dispersion of delicate solids in solution...

See Page 12

NEW Carousel 6 Plus Reaction Station™

180˚C

The patented Carousel 6 simultaneously heats, stirs and reflux's multiple samples under an inert atmosphere...

The Carousel 6 accepts round bottom flasks including: 5ml, 10ml, 25ml, 50ml, 100ml, 170ml and 250ml sizes.

Features...

- Powerful, even stirring - fits on to a Carousel stirring hotplate.
- Rapid heating to 180˚C.
- Quick to set-up and easy to use.
- Water cooled reflux head.
- Perform reactions under an inert atmosphere.
- Easy viewing of flask contents during experiments.
- 250ml Azeotropic (Dean & Stark) flask option.
- PTFE caps feature a 'quick-thread' for fast attachment to flasks.

Unit shown due for release Spring 2011

Heated directly by the stirrers hotplate; providing an operating temperature range from ambient to 180°C. Digital temperature control +/- 0.5˚C.

Central inlet/outlet for vacuum and gas, combined with a radial gas distribution system and gas-tight PTFE caps allow reactions under an inert atmosphere.

Round design makes all reaction flasks visible, with no need to lean into the fume cupboard.

Chemically resistant Easy-On PTFE caps feature a quick-thread for fast attachment to the glass tubes and push-on connections to the s/steel gas outlets.

Water cooled aluminium reflux head provides efficient refluxing within individual glass reaction flasks. Quick-release couplings prevent water loss during set-up/breakdown.

Aluminium inserts allow easy removal of flasks and good temperature transfer for refluxing.

Range of glass vessels includes 5ml, 10ml, 25ml, 50ml, 100ml, 170ml & 250ml round bottom flasks, as well as vessels with one or two sidearms.

Rare earth elliptical PTFE stirring bar provides powerful stirring and a deep vortex.

Utilises the single rotating magnetic field of the hotplate stirrer to stir all the positions evenly and powerfully.

PTFE heat protection ring protects user from contact with hot base.

Round aluminium base transmits heating evenly to all positions. Compact size has small bench-top footprint - easy to store.

Carousel Stirring Hotplate offers higher temperature, more powerful stirring and digital control.

Aluminium Inserts for 5ml, 10ml, 25ml, 50ml, 100ml and 170ml Flasks

5ml Reaction Flask Reflux Tube & PTFE Cap

10ml Reaction Flask Reflux Tube & PTFE Cap

25ml Reaction Flask Reflux Tube & PTFE Cap

50ml Reaction Flask Reflux Tube & PTFE Cap

50ml Flask with Sidearm Reflux Tube & PTFE Cap

100ml Reaction Flask Reflux Tube & PTFE Cap

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NEW Cooled Carousel 6 Plus Reaction Station™

Offering cost effective low temperature parallel synthesis down to -78˚C...

The Carousel 6 allows chemists to perform sub-ambient reactions in a range of flasks from 5ml to 250ml with the option of an inert, moisture free atmosphere.

-78˚C

Features...

- Simultaneously performs up to six cooled and stirred reactions to -78˚C
- Powerful, even stirring - reservoir fits on to a Carousel stirring hotplate.
- Robust HDPE cooling reservoir is compatible with a wide range of cooling mixtures, including dry-ice/acetone for manually controlled cooling from ambient down to -78˚C.
- Insulated foam core maintains low temperatures for long periods, whilst protecting the stirrer from freezing. Also reduces condensation and ice formation on outer surfaces.
- HDPE lid keeps your reaction cooler for longer, minimises ice formation on your flasks (maintaining visibility of the contents) and prevents spitting from the cooling mixture.
- Round design makes all reaction flasks visible and allows easy addition of reagents and solvents, with no need to lean into the fumehood.

Visit www.radleys.com to download a PDF on the Cooled Carousel 6

HDPE Lid reduces frost formation and reduces the risk of solvents spitting.

Central inlet/outlet for vacuum and gas, combined with a radial gas distribution system and gas-tight PTFE caps allow reactions under an inert atmosphere.

Chemically resistant Easy-On PTFE caps feature a quick-thread for fast attachment to the glass tubes and push-on connections to the s/steel gas outlets.

Round design makes all reaction flasks visible; with no need to lean into the fume cupboard.

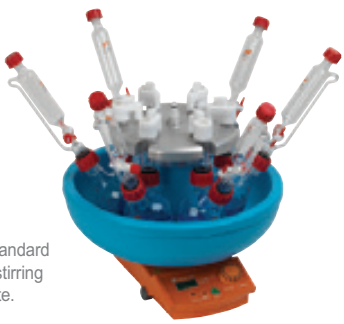
Robust HDPE cooling reservoir is compatible with a wide range of freezing mixtures including dry-ice/acetone for manually controlled cooling from ambient to -78˚C.

Insulated foam core maintains low temperatures for long periods, whilst protecting the stirrer from freezing. Also reduces condensation and ice formation on outer surfaces.

Rare earth elliptical PTFE stirring bar provides powerful stirring and a deep vortex.

Utilises the single rotating magnetic field of the hotplate stirrer to stir all the positions evenly and powerfully.

No electrical or moving parts ensures maintenance free operation. Easy to set-up with minimal training time.



HDPE Cooled Carousel Stand

Carousel Stirring Hotplate powerful stirring with digital control.

Fits on a standard Carousel stirring hotplate.

Compact size has a small bench-top footprint and is easy to store.

100ml Flask with Sidearm Reflux Tube & PTFE Cap

170ml Reaction Flask Reflux Tube & PTFE Cap

250ml Reaction Flask Reflux Tube & PTFE Cap

NEW 250ml Wide Neck Vessel

250ml Flask with 2 Sidearms with Dropping Funnel

250ml Reaction Flask with Dropping Funnel

250ml Azeotropic Reaction Flask with Dropping Funnel

Visit www.radleys.com
to watch the Tornado Movie
or download a PDF

Tornado™ Overhead Stirring System

Use a single overhead stirrer to stir up to six round bottom flasks from 50ml to 250ml simultaneously. Increase your stirring productivity by up to 600%...

The Tornado allows powerful, controlled mechanical stirring of round bottom flasks with the Carousel 6 Reaction Station; offering unrivalled stirring for both viscous samples and for the dispersion of delicate solids in solution.

Features...

- Integrates with Carousel 6 to provide heated and stirred reactions.
- Rapid heating to 180˚C, with water cooled reflux head.
- Perform reactions under an inert atmosphere.
- Accepts 50ml, 100ml and 250ml round bottom flasks.
- Uses a single overhead stirrer - save space and money compared with multiple set-ups
- Compatible with all leading brands of overhead stirrer.
- 2-speed drive allows overhead stirrers with less torque to be used for higher viscosities.
- Stir to 1,000rpm in low viscosity solutions.
- Max. viscosity 10,000mPas at 500rpm.

PTFE Stirring Shafts...

Choice of centrifugal, anchor and propeller PTFE stirrers, specifically sized for each vessel.

Azeotropic Vessels...

250ml Azeotropic (Dean & Stark) flask option.

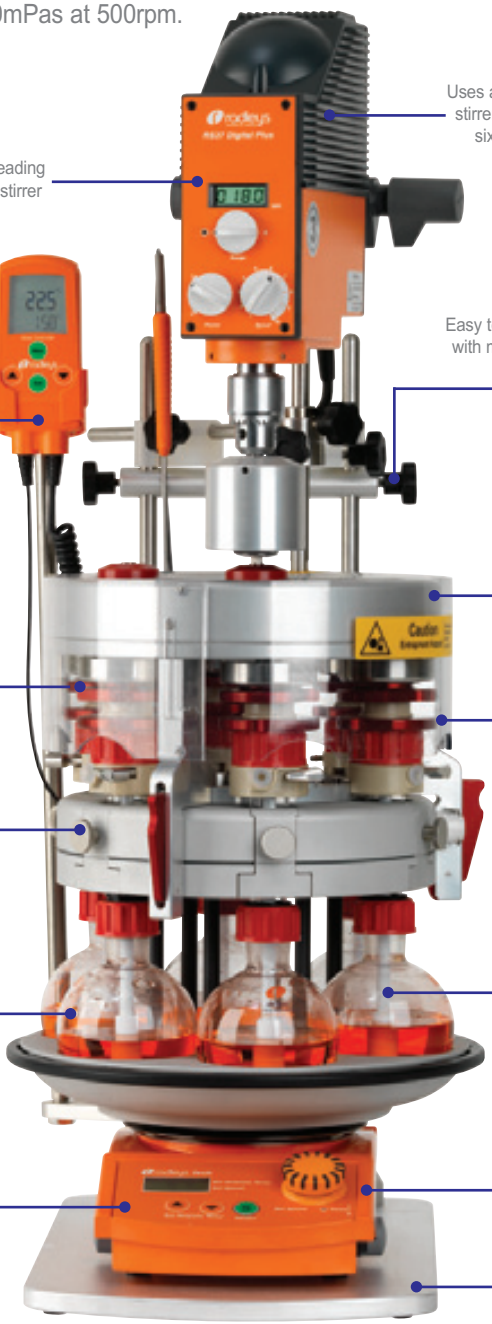
250ml Azeotropic vessel with dropping funnel and centrifugal stirrer

Vessels with wide necks & baffles...

Wide neck vessels allow easier removal of viscous samples and the accommodation of a variety of larger stirrer blades. Baffles improve stirring by disrupting the creation of a vortex.

100ml with baffles | 250ml plain | 250ml with sidearm

Individual vessels can be removed easily



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NEW RS Overhead Stirrers for powerful stirring

The powerful RS range can accomplish the most demanding mixing tasks whilst providing the highest safety and increased operating lifetime...

Includes 3 YEAR Warranty

Features...

- Powerful stirring from 40 to 2000 rpm.
- Smooth start, which prevents splashing and spills.
- Lightweight, easy to set-up and use.
- Choice of mechanical and electronic options, with analogue or digital control.
- Designed for continuous 24 hour operation and high viscosity applications.
- High torque (up to 520 Ncm) provides better mixing in less time; reducing process times.
- Two gear design guarantees the highest power over the entire speed range.
- Sealed housing which helps prevent internal corrosion from aggressive liquids and vapours and ensures years of maintenance-free operation.
- Sparkless motors reduce potential risks in volatile environments.
- Safety over-temperature sensor shuts off the unit to prevent overheating.

RS27 Standard Overhead Stirrer

RS27 Standard for standard applications...

- Analogue control, 2 gears, 40 to 2,000 rpm.
- Suitable for applications that do not require accurate speed settings.
- Ideal for medium to high viscosity mixing tasks with a maximum viscosity of 60,000 mPa s.

RS37 Digital Plus for high viscosity...

- Bright digital display for accurate speed settings.
- 2 gears, 40 to 2,000 rpm.
- Ideal for any highly viscous mixing with a maximum viscosity up to 100,000 mPa s.

RS37 Digital Plus Overhead Stirrer

BEST SELLER

RS50 Control for precise stirring...

- Enhanced bright digital display of torque and speed.
- 50 to 2,000 rpm (single gear).
- Viscosity range up to 10,000 mPa s.
- Maintains constant speed even under changing loads.
- Allows you to calibrate your torque during your process to monitor viscosity changes over time.
- RS232 interface for remote control or via PC .

Accessories...

- Range of paddle designs available in stainless steel, PTFE and plastic.
- Range of fixed and telescopic stands.
- Optional remote control allows operation from outside the fumehood.

	RS27 Standard	RS37 Digital Plus	RS50 Control
Power input/output (W)	50/27	70/37	80/50
Gears	2	2	1
Speed range (rpm)	40 - 400 200 - 2,000	40 - 400 200 - 2,000	50 - 2,000
Speed indicator	Analogue	Digital	Digital
Speed control	Mechanic	Mechanic	Electronic
Maximum torque (Ncm)	400	520	20 (40 overload mode)
Power reserve under overload (%)	-	-	200
Torque indicator (Ncm)	-	-	Digital
Viscosity up to (mPa s)	60,000	100,000	40,000
Stirring cap. H_20 up to (l)	25	40	100
RS232 interface	-	-	yes
Shaft diameter up to (mm)	10	10	10
Stay bar size (dia. x l)	13 x 160	13 x 160	13 x 160
Weight (kg)	3.0	3.3	2.8
Dimension w x h x d (mm)	82 x 206 x 176	82 x 211 x 176	72 x 206 x 176
Protection class (DIN EN 60529)	IP 40	IP 40	IP 40
Supply voltage	230 V/ 50 Hz	230 V/ 50 Hz	230 V/ 50 Hz

RS50 Control Overhead Stirrer

Visco Jet 60mm ø S/S

Visco Jet 120mm ø S/S

Visco Jet 80mm ø POM

Square Blade Stirrer

Collapsible Blade Stirrer

Pitched Blade Stirrer

Ringed Stirrer

Radial Flow Stirrer

PTFE Anchor

PTFE Turbine

PTFE Retreat Curve

Breeze™ Heating/Cooling Work Station

-30°C 165°C

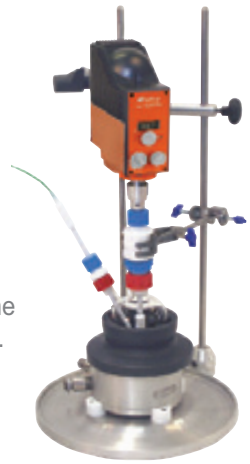
Combined with a circulator, the compact Breeze provides rapid heating/cooling and is ideal for applications requiring precise control by solution temperature...

Designed as an add-on module for the Carousel 6 and Tornado, Breeze creates a 'Parallel Process Reactor' that heats/cools and mechanically stirs 6 flasks (50ml to 250ml). Making Breeze ideal for applications that require precise solution temperature control, such as crystallisation studies.

Breeze, Carousel 6, Tornado and overhead stirrer

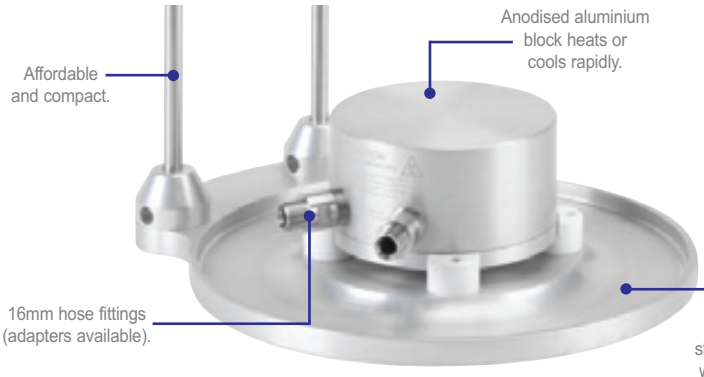
Features...

- Rapidly heat/cool, multiple or individual flasks up to 5 litres.
- Thermofluid range of -85°C to +235°C; providing a solution temperature of -30°C to +165°C.
- 135mm ø top plate integrates with the Carousel 6, Tornado, Heat-On and other reaction blocks.
- Breeze's small internal volume ensures a quick response to changes in thermofluid temperature.
- Internal design maximises heat transfer from the thermofluid to the top plate and minimises temperature variation across the surface.
- Mechanical stirring provided by Tornado or overhead stirrer.
- M16 hose connections, suitable for all popular brands of circulator.



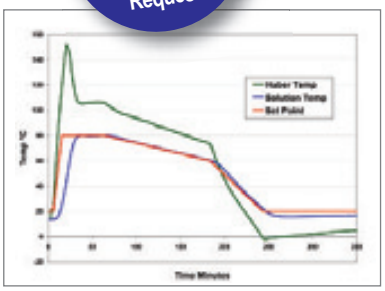
Breeze with 250ml Heat-On, stand and overhead stirrer

Breeze includes a removable stand and drip tray...
Breeze comes with a removable aluminium stand and stainless steel support rods that ensure the set-up is sturdy and safe. The stand also acts as a drip-tray for any spills or condensation that may form when using at sub-ambient temperatures.



Aluminium block can be easily unscrewed from the drip tray.

Storm & Breeze Technical Data Sheet Available on Request



Breeze Stepped Temperature Profile using a Huber Ministat 230

Technical Specifications

Description	Breeze
Solution Temperature Range	-30˚C to +165˚C
Thermofluid Operating Limits	-85˚C to +235˚C
Control by Solution Temperature	Yes
Typical Applications	Variable temp applications such as crystallisation
Hose Fittings	M16 (16mm)
Dimensions (mm)	135 x 80mm
Insulated	No
Weight	Without stand 1.6kg (With stand 3.2kg)

What is the difference between Storm & Breeze?

Storm: The larger of the two work stations features a sophisticated internal fluid path that combines with a high performance insulated case to maximise thermal transfer. These features create a temperature control module that has a wide operating range with excellent heat transfer, making Storm ideal for steady state reactions from -65˚C to +200˚C that require stable temperatures for extended periods, with minimal variation across the heated surface.

Breeze: More compact, with a small bench-top footprint, featuring a removable stand for stability and easy clamping. Breeze has no insulation resulting in a smaller operating range of -30°C to +165°C but has a much faster response time to required changes in temperature. This makes Breeze more suitable for applications that require solution control such as crystallisation studies.

Description	Heating Power (kW)	Cooling Power at 0˚C (kW)	Storm		Breeze	
			Cooling to -30˚C	Heating to 100˚C	Cooling to -30˚C	Heating to 100˚C
Huber Ministat 230 (-33˚C/+200˚C)	2.0	0.35	n/a	34 mins	n/a	30 mins
Huber Unistat 705 (-75˚C/+250˚C)	1.5	0.65	44 mins	56 mins	60 mins	44 mins
Huber Unistat 825 (-85˚C/+250˚C)	3.0	2.2	27 mins	27 mins	85 mins	n/a

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Storm™ Heating/Cooling Work Station

-65˚C 200˚C

Combined with a suitable circulator, Storm can provide controlled steady state heating and cooling...

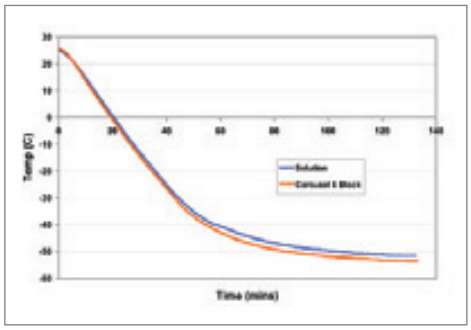
Storm was designed as an add-on module for the Carousel 6 and Tornado combination, creating a powerful 'Parallel Process Reactor' that heats and cools, mechanically stirs up to 6 flasks (50ml to 250ml), making it the ideal process optimisation and development tool.

Features...

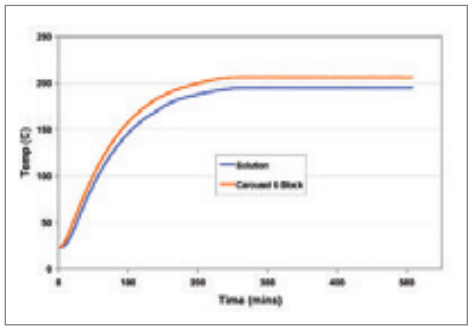
- Create a single or parallel stirred reactor with controlled heating/cooling from 5ml to 5 litres.
- Thermofluid range of -85°C to +235°C; providing a solution temperature -65°C to +200°C.
- 135mm ø top plate integrates with the Carousel 6, Tornado, Heat-On & other reaction blocks.
- Ideal for temperature controlled steady state reactions.
- Unique internal design maximises heat transfer from the thermofluid, focussing the energy towards the top plate surface. This design also minimises temperature variation across the contoured top plate .
- The insulated outer case reduces heat loss and prevents the user from coming into contact with the extreme temperatures of the internal thermofluid.
- Mechanical stirring provided by Tornado or suitable overhead stirrer.
- M24 hose connections, suitable for all popular brands of circulator or thermoregulator.

Typical heating & cooling profiles for Storm...

The following temperature profiles demonstrate the cooling and heating power of Storm when combined with a Huber 705 thermoregulator and a Carousel 6 Reaction Station.



Storm/Carousel 6 Cooling Profile using a Huber 705



Storm/Carousel 6 Heating Profile using a Huber 705

Storm with Carousel 6, Tornado, overhead stirrer and PTFE insulating plate

Carousel 6 locates on to the Storm without tools

Technical Specifications

Description	Storm
Solution Temperature Range	-65˚C to +200˚C
Thermofluid Operating Limits	-85˚C to +235˚C
Control by Solution Temperature	No
Typical Applications	Steady state temp reactions such as parallel chemistry
Hose Fittings	M24 (24mm)
Dimensions (mm)	367 x 143.5mm
Insulated	Yes
Weight	13kg

Improving the productivity of your chemistry

GreenHouse Work-Up

Rapid sequential and parallel purification in a 24 well MTP footprint using standard filtration, phase separation and SPE columns.

Designed to make your parallel chemistry work-up and purification quick and easy.

GreenHouse Plus Parallel Synthesiser™

-78˚C 150˚C

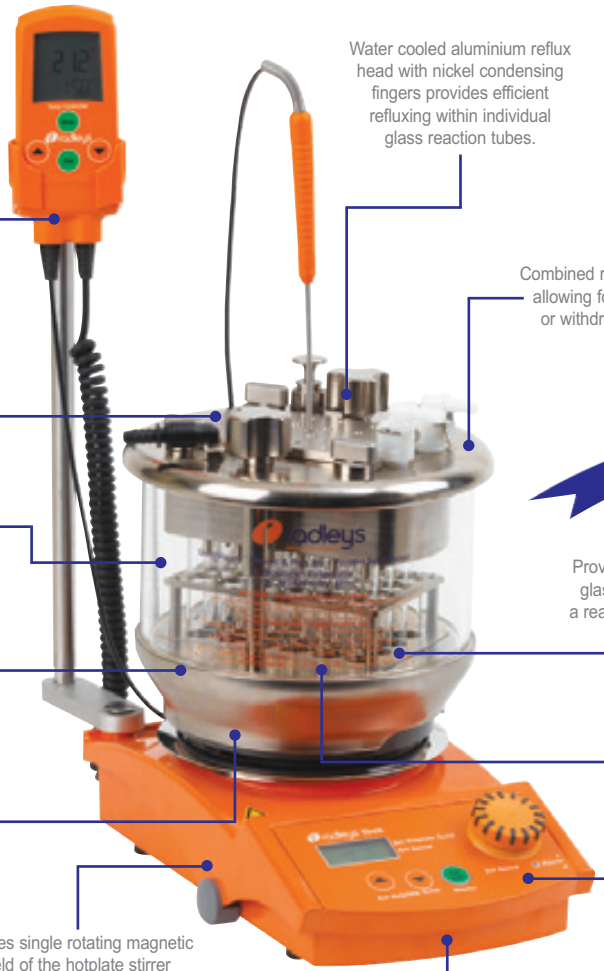
The GreenHouse Plus provides 24 heated and stirred glass reactions with volumes from 0.5ml to 7ml. The combined reflux and additions head allows for convenient additions or withdrawals whilst maintaining an inert atmosphere.

The patented GreenHouse Plus brings all the benefits in productivity of parallel synthesis at a fraction of the cost of automated systems. Holding 24 glass reaction tubes in a removable reaction block with the same footprint as a standard micro titer plate, the GreenHouse Plus facilitates rapid transfer of samples by multi-channel pipettor or robotic systems.

Features...

- Powerful stirring and rapid heating to 150˚C.
- Removable water cooled reflux head.
- Perform reactions under an inert atmosphere.
- Easy viewing of tube contents during experiments.
- Nickel plated aluminium offers excellent chemical resistance.

Optional HDPE cooling reservoir for chilled reactions to -78˚C using dry ice and acetone.



Water cooled aluminium reflux head with nickel condensing fingers provides efficient refluxing within individual glass reaction tubes.

Heated directly by the stirrer hotplate; providing an operating temperature range from ambient to 150˚C. Digital temperature control +/- 0.5˚C.

Combined reflux and additions head allowing for convenient additions or withdrawals whilst refluxing.

From Synthesis to Evaporation in a

A choice of septum mats are available.

Cylindrical glass gas enclosure provides visibility of all 24 reaction tubes, with no need to lean into the fume cupboard.

Provides 24 heated and stirred glass reaction positions, with a reaction volume of 0.5 to 7ml.

No electrical or moving parts ensures maintenance free operation. Easy to operate and set-up, with minimal training time.

"V-Mag" technology uses a vertically positioned stirring bar to maximise the uniformity of the stirring within each reaction tube.

Round aluminium base transmits heat evenly to all positions. Compact size has small bench-top footprint - easy to store.

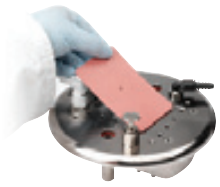
Utilises single rotating magnetic field of the hotplate stirrer to stir all 24 positions.

Fits on a standard Carousel stirring hotplate

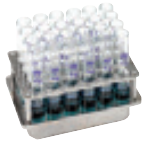
Carousel Stirring Hotplate offers higher temperature, more powerful stirring and digital control.

Visit www.radleys.com to download a PDF on the GreenHouse Plus

Combined Reflux and Additions head with nickel condensing fingers



GreenHouse Plus allows additions & withdrawals through sealing mats



Reaction block fits directly into Genevac vacuum centrifuges

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GreenHouse Blowdown Evaporator™

Parallel evaporation of samples in 8 or 24 vials, tubes & micro titer plates.

Features...

- The GreenHouse Blowdown uses a precisely controlled flow of inert gas combined with digitally controlled heating to carefully evaporate your samples.
- Interchangeable plates with either 8 or 24 hollow blowdown pins deliver an equal flow of gas to each tube, vial or well.
- The absence of a vacuum avoids bumping, protecting the sample during evaporation.
- Nickel plated aluminium offers excellent chemical resistance.
- Easy viewing of samples during evaporation.
- Optional flowmeter precisely controls flow of inert drying gas.

Compatible with:

- 7ml GreenHouse tubes
- 8 or 24 position vial racks
- 13mm, 13.8mm, 15mm, 24.3mm & 27.8mm Ø vials
- 8 or 24 well micro titer plates

Evaporate 8 vials, each containing 5ml of methanol in only 22 minutes.

Precise heat control and the absence of a vacuum also protects your sample and avoids bumping. Digital temperature control +/- 0.5˚C.

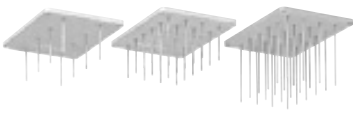
Safety relief valve on inlet prevents over-pressure during operation.

Enclosed design contains evaporating solvent, allowing subsequent trapping and collection of solvent via a high performance glass condenser.

Removable head features quick-release handles for easy exchange of Blowdown Pin Plates.

...a single compact system...

Select the appropriate Blowdown Pin Plate. Interchangeable plates with either 8 or 24 hollow pins deliver an equal flow of gas to each tube, vial or well.



Digitally controlled heating from the hotplate gently adds energy to the sample to speed the evaporation process.

Blowdown System with 24 Pin Plate, Standard GreenHouse Base, Reaction Block and 7ml Tubes.

Typical Evaporation Times

Solvent	Samples	Volume	Vessel	Evap. Time
Methanol	24	2ml	3.5ml Vial	20 mins
Methanol	8	5ml	20ml Vial	22 mins
Acetonitrile	24	2ml	3.5ml Vial	20 mins
Acetonitrile	24	2ml	7ml Tube	35 mins
Water	8	5ml	20ml Vial	157 mins
DMF	24	2ml	3.5ml Vial	138 mins
DMF	24	2ml	7ml Vial	145 mins
40˚C Base Temperature. Flowrate 10 l/min (8 well), 20 l/min (24 well)				

Insert the adaptor into the GreenHouse Base to accept vial racks or titer plates... ...or use the dedicated, low profile, Blowdown Base.

Insert the adaptor into the GreenHouse Base | GreenHouse Base and 24 Position Vial Rack | GreenHouse Base and 8 Position Vial Rack | GreenHouse Base and 24 Position MTP | Blowdown Base and 24 Position Vial Rack | Blowdown Base and 8 Position Vial Rack | Blowdown Base and 24 Position MTP

Parallel Work-Up...

Rapid sequential and parallel purification in a 24 well MTP footprint using standard filtration, phase separation and SPE columns.

Designed to make your parallel chemistry work-up and purification quick and easy.

GreenHouse Work-Up Station™

This unique system allows rapid sequential and parallel purification in a 24 well micro titer plate footprint using standard 3ml or 6ml filtration, phase separation and SPE columns...

Features...

- Innovative stacked column design allows sequential purification e.g. phase separation and SPE or filtration and SPE.
- Removable upper support plate allows unit to be used for single or sequential purification.
- Clear gas cover allows pressure to be applied to increase flow rate of difficult samples.
- Accommodates all standard 3ml and 6ml tabbed or tabless SPE or filtration columns.
- Accepts all standard 24 well micro titer plates, as well as GreenHouse Reaction Blocks for fraction collection.
- Full range of Filtration, Phase Separation and SPE Columns including Silica, SCX, Aminopropyl and SAX Acetate.

Clear gas cover allows slight positive pressure to be applied to increase flow rate of difficult samples.

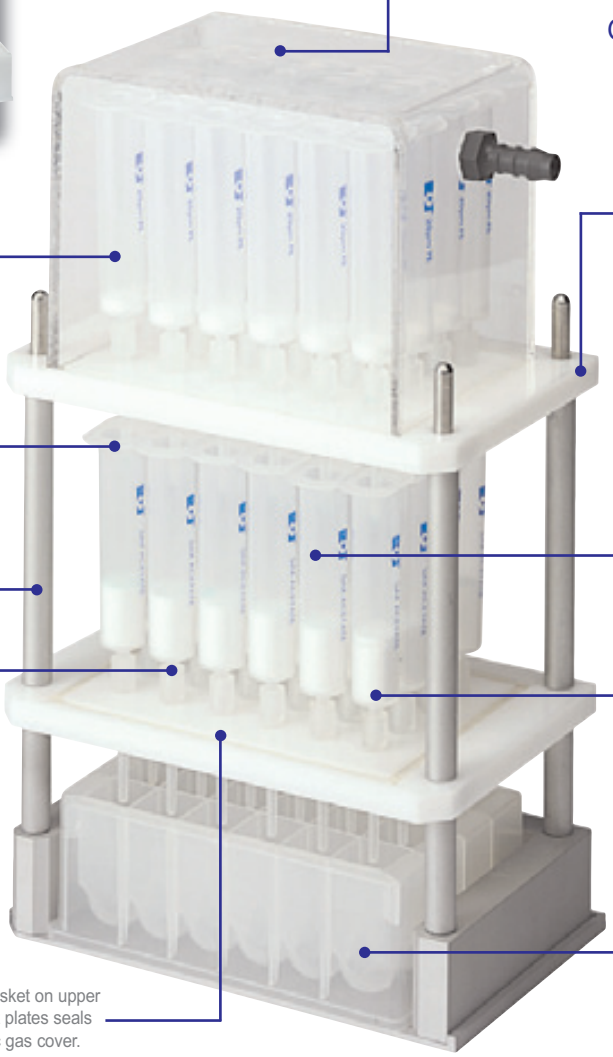
Visit www.radleys.com to download a PDF on the GreenHouse Work-Up Station

Easily removable upper support plate allows unit to be used for single or sequential parallel purification.

Stacked column design allows sequential purification e.g. phase separation and SPE or filtration and SPE.

Robust anodised aluminium construction.

Radleys offers a wide range of SPE columns, including Silica, SAX Acetate, Aminopropyl, SCX, plus Phase Separation and Filtration columns.



Unique recessed design of support plates allows positioning of standard format columns within micro titer plate footprint without column tabs obstructing each other.

Design accommodates all standard 3ml and 6ml tabbed or tabless SPE or filtration columns.

Accepts all standard 24 well micro titer plates, as well as GreenHouse Plus Reaction Blocks for fraction collection.

Silicone sponge gasket on upper and lower support plates seals with clear acrylic gas cover.

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Carousel Work-Up Station™

Easy-to-use, the Carousel Work-Up Station reduces post synthesis bottle-necks...

Features...

- The Carousel Work-Up Station facilitates parallel or sequential work-up of up to 12 samples, using filtration, phase separation, liquid/liquid extraction or SPE techniques.
- The Carousel Work-Up Station accepts 12 x 70ml columns loaded into one of two identical stackable racks.
- The lower rack supports 12 corresponding Carousel Reaction Tubes or standard 1 inch boiling tubes for subsequent sample collection.

Visit www.radleys.com to download a PDF on the Carousel Work-Up Station

Use under gravity or with the SpeediFlow Booster, which allows pressurisation of individual columns to increase flow rates and speed up your work-ups.

Aluminium racks are exceptionally stable, with good access and visibility of all columns and tubes.

Each position is numbered 1 to 12 for ease of identification. The racks will only locate in one orientation.

An optional 3rd rack can be stacked above the 2nd rack for sequential work-up.

Accepts 70ml columns; including 20µm Filtration, Phase Separation, Liquid/liquid Extraction, Silica, SCX, Aminopropyl and SAX Acetate.

Unique design uses no taps, valves or drip needles, making assembly and operation fast and simple. Minimising cleaning time and consumable costs.

Identical racks lock together for ease of operation or transportation from location to location.

Vacuum free operation makes removal of collections tubes easy, prevents drying of columns and reduces the risk of bumping.

Ergonomically designed, lightweight aluminium racks are easy to load with collection tubes or work-up columns.

Accepts 12 x Carousel Reaction Tubes or standard 1 inch boiling tubes.

To locate a second rack on top of the first, pull out the spring loaded knob and rotate 90˚.

Removal of adapters is simple...

Pull out the locking pin, release the handle...

...and the adapter can be easily pulled out.

SpeediFlow Adapters

Optional removable adapters are available for use with 15ml, 25ml 70ml and 150ml columns plus the Whatman AutoCup®.

Titan™ 24 & 96 Well Resin Loaders

Rapidly load resins or solid supported reagents into 24 or 96 well arrays...

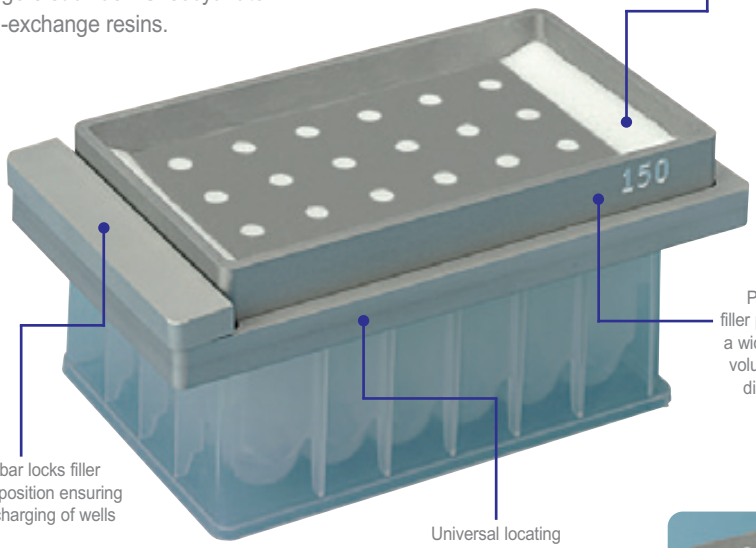
The Titan Resin Loaders are designed for the efficient parallel dispensing of resins into a variety of 24 & 96 well formats. Developed by chemists at GlaxoSmithKline the Titan Resin Loader speeds up the process of loading small amounts of resin into 24 or 96 arrays and avoids the use of toxic solvents.

The quantity of resin dispensed is determined by the precision engineered Filler Plates. By using the appropriate size, or a combination of sizes, the volume required can be accurately and repeatably dispensed into each array. The 24 well system includes three sizes of Filler Plate and the 96 well system six sizes of Filler Plate; which can be used individually or in combination to provide a wide range of filling volumes.

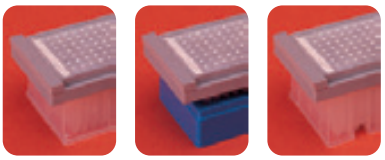
Load ten micro titer plates in less than 50 minutes...

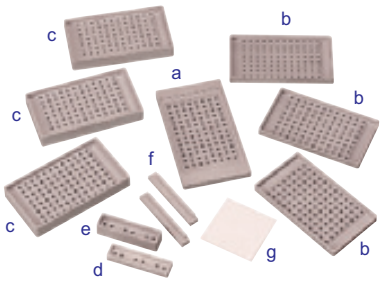
Compatible with:
- 24 or 96 Well Micro Titer Plates
- 24 or 96 Position Tube Systems
- GreenHouse Reaction Block
- Mettler MiniBlock
- Irori MicroKans & Minikans
- Robbins FlexChem Synthesiser

Compatible resins include:
- Solid phase resins e.g. Wang, Merrifield.
- Solid supported reagents such as PS-carbodiimide.
- Scavengers such as PS-isocyanate and ion-exchange resins.

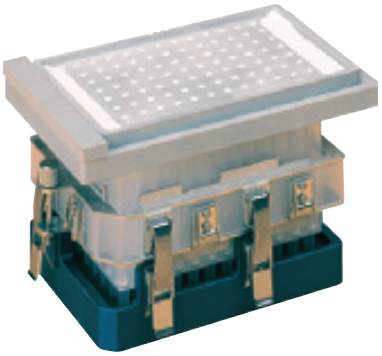


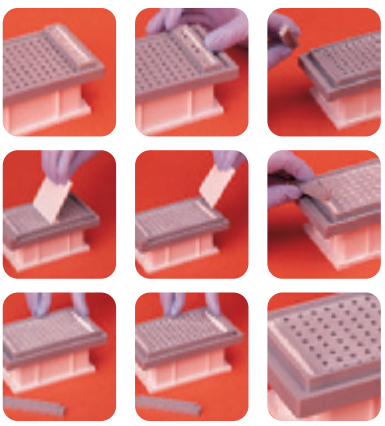
Titan 96 Well Resin Loader



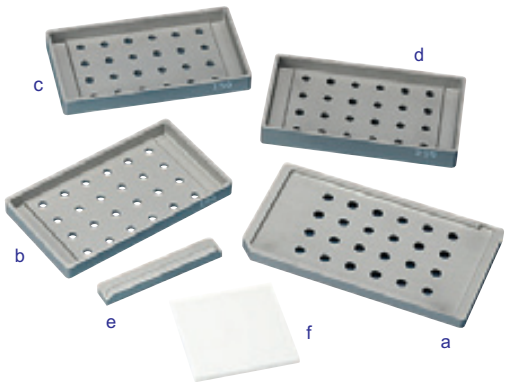


Titan 96 Well Resin Loader includes:
- **a** Locating Plate
- **b** Three Shallow Filler Plates
- **c** Three Deep Filler Plates
- **d** Shallow Calibrator Block
- **e** Deep Calibrator Block
- **f** Spacing Bar
- **g** Acrylic Resin Spreader

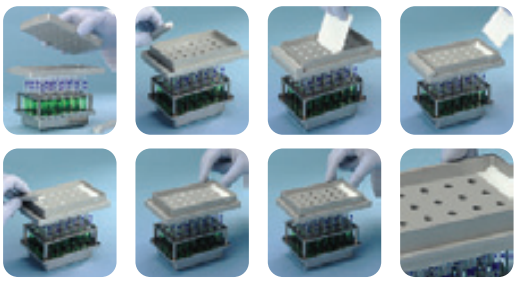




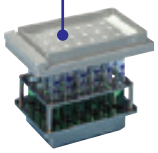
Titan 24 Well Resin Loader



The Titan 24 Well Resin Loader includes:
- **a** Locating Plate
- **b** 100mm³ Filler Plate
- **c** 150mm³ Filler Plate
- **d** 250mm³ Filler Plate
- **e** Loader Spacing Bar
- **f** Acrylic Resin Spreader



The Titan 24 Well Resin Loader is compatible with the GreenHouse Plus Reaction Block



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Metz Heater-Shaker Reaction Station™

Multiple position heating and shaking with removable aluminium heating blocks for reaction tubes or micro titer plates...

150˚C

The unique Metz Heater-Shaker is ideal for solid phase chemistries where conventional stirring bars would damage the resin. Applications include parallel synthesis, process optimisation and biological incubations.

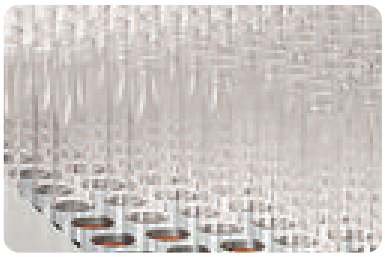
Features...

- Precise heating control from ambient plus 5˚C to 150˚C (±0.5˚C between wells).
- Microprocessor controlled shaking from 100 to 600rpm (19mm Ø orbit).
- Easy to use touch panel control of heating and shaking with back lit LCD display.
- Compact, low profile design (235mm wide x 165mm high x 508mm deep).
- Choice of easily removable reaction blocks for tubes, micro titer plates & custom options.
- Soft start feature to allow slow build-up to set speed (from 0-59 mins), minimising splashing or sample damage.
- Auto-Park feature ensures the block always returns to the same X-Y position for accurate alignment with robotic systems.
- RS232/RS485 interface allows setting of individually timed heating and agitation profiles via PC and can be integrated with robotic systems for automated operation.
- An over temperature thermal cut-off switch eliminates runaway heating conditions.
- When the reaction block temperature raises above 50°C, a 'HOT' symbol will flash, warning of high temperature, even if the unit is then disconnected from the mains supply.
- Safety Interlock facility ensures the agitation will stop when the block door is opened.

Standard and custom reaction blocks available...

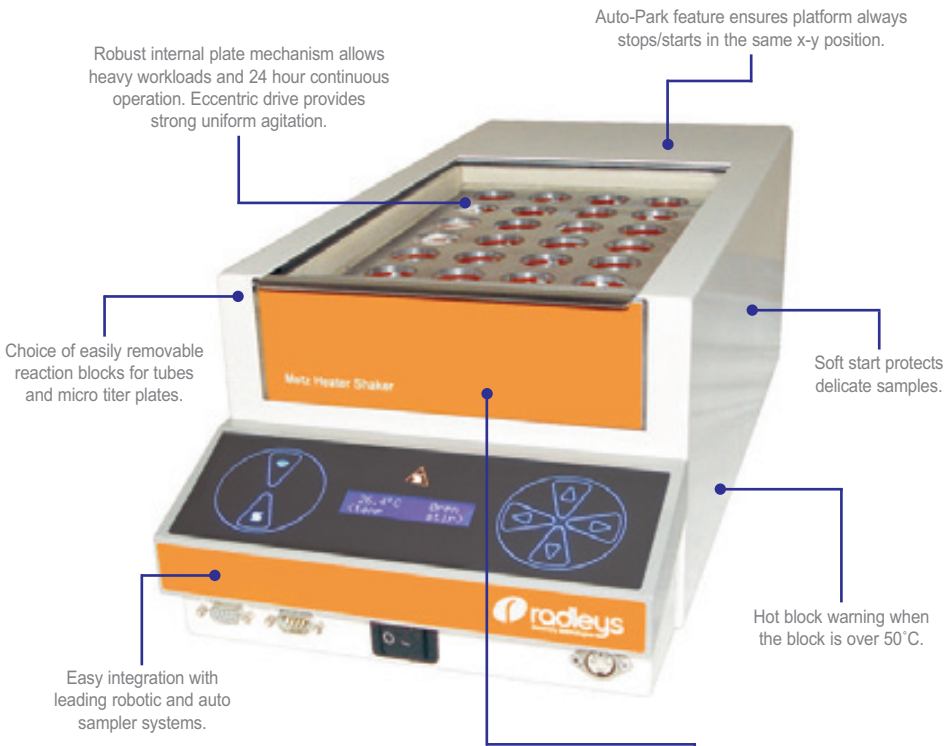
Standard Reaction Block Modules

- 96 well block for 16mm Ø tubes
- 40 well block for 24mm Ø tubes
- 4 place block for MTPs
- 4 place block for PTFE MTPs
- 90 well block for 1.5ml tubes

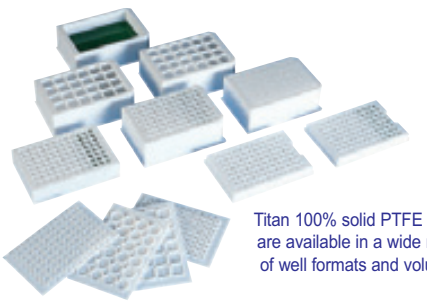


Precision engineered aluminium blocks efficiently heat reaction tubes to 150˚C

Easy to use touch panel control of heating and shaking with back lit LCD display of values



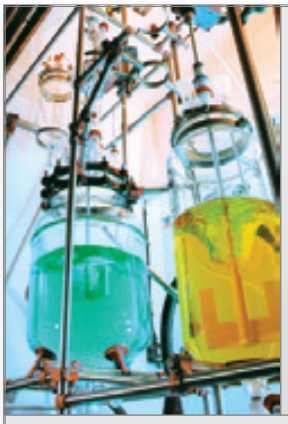
96 position reaction block holds 16mm ø tubes ` (12 x 8) gripped by internal 'O' rings



Titan 100% solid PTFE plates are available in a wide range of well formats and volumes

Reaction block accepts 4 Titan PTFE Micro Titer Plates

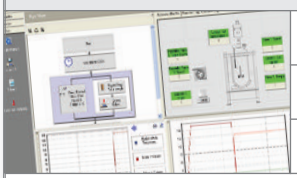
Jacketed Reaction System Quick Guide





Jacketed Reaction Systems		Reactor-Ready	Reactor-Ready Duo	Lara CLR
Custom Reaction Systems	Reaction System Kits	Lab Reactor	Dual Lab Reactor	Controlled Lab Reactor
Custom designed reaction systems from 100ml to 50 litres	Traditional reactor kits for 250ml, 500ml, 1 litre, 2 litre, 5 litre 10 litre and 20 litre vessels	Innovative, reactor work station for vessels from 100ml to 5 litres	Innovative, two vessel reactor work station for vessels from 100ml to 5 litres	With integrated stirrer, software and remote control, for vessels from 100ml to 10 litres
User Profile				
Chemists and process engineers requiring a custom reaction system for a specific application	Chemists requiring a standard reaction system with basic features	Chemists requiring an off-the-shelf, pre-configured, easy to use glass lab reactor	Chemists requiring a multi-vessel or parallel off-the-shelf, pre-configured, easy to use glass lab reactor	Chemists and process engineers who require an automated reactor platform to accommodate a wide variety of vessel volumes and designs
Key Features				
Custom vessels and framework designed to your specifications	Features all traditional reactor components	Reactor work station that can be easily used for different vessels and experiments	Set-up two vessels in parallel, in series or independently	Automated model includes software, data hub and PC controller
In-house design and manufacturing	Traditional robust metal frameworks, fittings and clamps	Convenient and quick reactor exchange and stirrer alignment	Convenient and quick reactor exchange and stirrer alignment	Innovative reactor clamp allows rapid reactor exchange leaving lid in place
Complex multiple vessel set-ups and software control available	Bench-top and floor standing options	Off-the-shelf, quick to set up, easy to use and with a variety of vessel volumes	Off-the-shelf, quick to set up and easy to use twin reactor work station	Integrated self aligning overhead stirring with digital speed and torque display
Choice of materials including glass, hastelloy, stainless steel & PTFE	Can be customised to integrate other accessories and software control	Can be customised to integrate other accessories and software control	Can be customised to integrate other accessories and software control	Wide range of standard or custom vessels and accessories
Specifications				
100ml to 50 litre	250ml to 20 litre	100ml to 5 litre	100ml to 5 litre	100ml to 10 litre
-60˚C to +230˚C	-60˚C to +230˚C	-60˚C to +230˚C	-60˚C to +230˚C	-60˚C to +230˚C

Radleys Control Software & Data Hub



Intuitive software for control and datalogging of Reaction Systems and Lab Reactors

Integrate and control 3rd party devices such as circulators, pumps, pH meters etc

Simple recipe design: store, recall and share experiments

Data Hub enables third party equipment with an RS232 interface to be connected, controlled and logged by the Control Software

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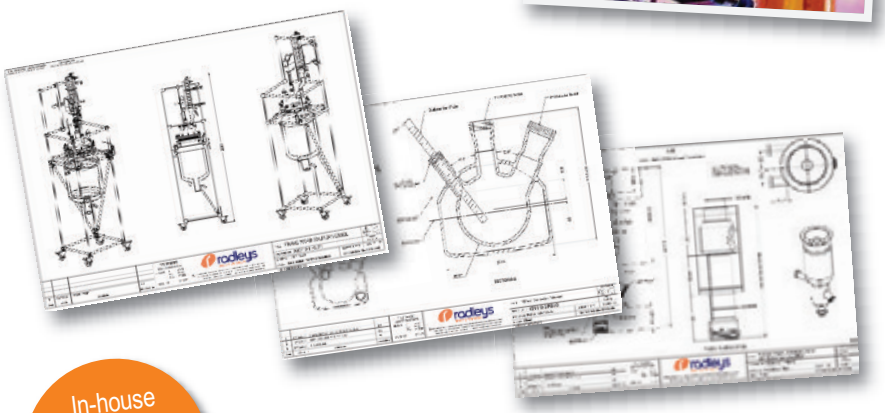
Jacketed Reaction Systems - *100ml to 50 litres*

Custom reaction systems to meet your specifications...

Radleys have been designing and manufacturing scientific glassware for over 45 years. Whether you require a multi-vessel process rig, a small benchtop reactor or a complex parallel set-up, our team of design engineers and scientific glassblowers will be pleased to help with your project.

Reactor features...

- Single and vacuum jacketed vessels.
- Frameworks and supports.
- Thermoregulators, chillers and circulators.
- Overhead stirrers, sensors and probes.
- Datalogging and software control.
- Installation and training.



In-house design and manufacture of vessels

Scope of our services...

- In-house manufacture and design.
- Jacketed reaction vessels to 50 litres.
- Vacuum jacketed reaction vessels to 10 litres.
- Tall, squat and process vessel geometries.
- Cylindrical or spherical vessels.
- Conical, dish and hemispherical vessel bottoms.
- Glass or PTFE lids.
- Vessels with optical windows or split jackets.
- Multi-reactor systems for parallel synthesis.
- Vessels with filters or sinters.
- Fermenters, bioreactors and photoreactors.
- Stands, supports and frameworks.
- Condensers, distillation assemblies, scrubbers etc
- Thermoregulators: supply and servicing.
- Thermofluids, hoses and adapters.
- Overhead stirrers: electrical and air powered.
- ATEX and explosion proof systems.
- Stainless steel, hastelloy and PTFE vessels.
- Modifications and repairs.

Simply tell us what you need...

The combination of different features and design variations for our reaction systems is almost limitless. Please contact our technical specialists or your local Radleys distributor to discuss your requirements...

Improving the productivity of your chemistry

Reactor-Ready™ Lab Reactor - *100ml to 5 litres*

This innovative, patented reactor work station allows you to swap reaction vessels in minutes, NOT hours....

Reactor-Ready is designed as a universal reactor work station that can be used for different vessel sizes and different experiments. Reactor-Ready can rapidly be configured to suit the chemistry and scale you need for each project. The beauty of Reactor-Ready is that not only is it extremely easy to use, but this one system can replace many, saving you money and fumehood space.

Features...

- Rapid vessel exchange with quick-release vessel clamp and hose couplings.
- Range of single and vacuum jacketed vessels from 100ml to 5 litres.
- Process vessels to mimic larger scale plant or manufacturing reactors.
- Accepts all leading brands of overhead stirrer and allows easy, tool free adjustment.
- Triple support stand features heavy duty stainless steel support rods for stability.
- Self aligning stirrer coupling engages without the need for tools.
- Innovative hose manifolds allow easy thermofluid drain down.
- Temperature range: -60ºC to +230ºC.
- Wide range of accessory glassware including condensers, dropping funnels etc.
- Optional software allows you to log & control stirrers, circulators, balances, pumps, temperature sensors & other devices.

Control Software & Data Hub allow you to log & control stirrers, circulators, balances, pumps, & other devices

Unique Vessel Clamp
- self centering
- quick release
- change vessels in minutes

Hose Couplings
- quick release
- connect in seconds
- chemical resistant PEEK

Individual Manifolds
- easy connection
- easy drain down
- reduces stress on vessel sidearms

Simple Stirrer Alignment
- slide and glide
- set and lock

Patented Stirrer Coupling
- drop in
- no tools
- no fuss

Standard Vessels
- 100ml to 5 litres
- vacuum jacketed option
- glass accessories to match

Process Vessels
- mimic plant scale geometry
- 100ml to 5 litres
- vacuum jacketed option

Swap vessels in minutes, NOT hours...

Vessels interchangeable

Convenient vessel kits make buying vessels and accessories easy and cost effective

A choice of popular stirrer paddles

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Reactor-Ready™ Duo Lab Reactor - *100ml to 5 litres*

All the benefits of Reactor-Ready with two vessels in parallel or series...

Reactor-Ready Duo shares the same unique features as Reactor-Ready but holds two independent jacketed glass reaction vessels. The system can be configured to operate with a single thermoregulator controlling the jacket temperature of both vessels simultaneously; or with two thermoregulators controlling the temperature of each vessel independently.

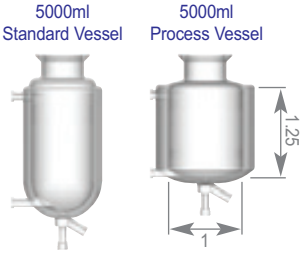
Features...

- Rapid exchange of both vessels independently, with quick-release vessel clamp and hose couplings.
- Choice of manifold kits allow two vessels to run from a single thermoregulator or two separate thermoregulators.
- System accepts two overhead stirrers which can be moved independently.

Applications...

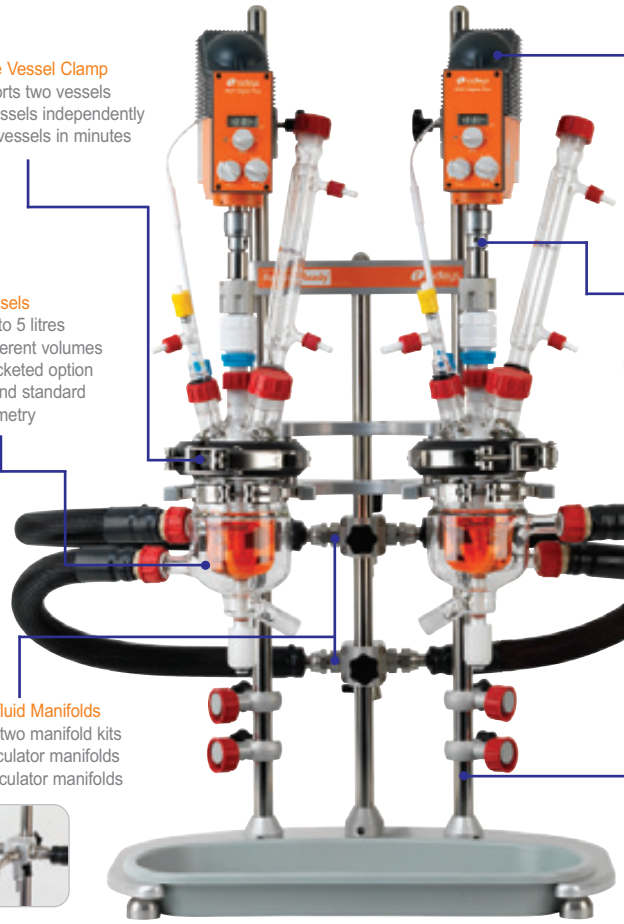
- Parallel synthesis or reaction optimisation: Use similar or different size vessels and vary stirring speed, stirrer shape and temperature between vessels.
- Two stage reaction: Transfer reactant from one vessel to the other using vacuum or a pump.
- Single reaction vessel: Using the second vessel as either a receiving or feed vessel (where reagents can be pre-heated or pre-cooled prior to addition).
- Use optional Control Software to control fluid transfer between vessels.

Process Vessels mimic the geometry of plant scale reactors, with a 1.25 to 1 ratio



Control Software & Data Hub allow you to log & control devices

...between systems...



Unique Vessel Clamp
- supports two vessels
- change vessels independently
- change vessels in minutes

Simple Stirrer Alignment
- set and lock
- independent stirring for each vessel

Vessels
- 100ml to 5 litres
- combine different volumes
- vacuum jacketed option
- process and standard geometry

Patented Stirrer Coupling
- drop in
- no tools
- no fuss

Hose Couplings
- quick release
- connect in seconds
- chemical resistant PEEK

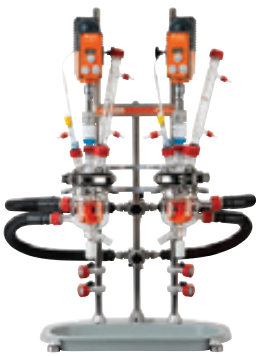
Thermofluid Manifolds
- choice of two manifold kits
- single circulator manifolds
- double circulator manifolds

Strong Framework
- heavy duty base
- solid s/steel support rods
- large drip tray

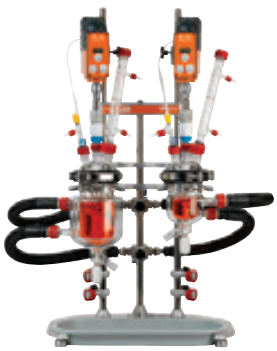
Supports two glass reaction vessels of different or similar volume from 100ml...

Similar vessels with Double Circulator Manifold Kit

Different vessels with Double Circulator Manifold Kit



Similar vessels with Single Circulator Manifold Kit



Different vessels with Single Circulator Manifold Kit

Lara includes Control Software, Data Hub and Laptop PC

Lara™ Controlled Lab Reactor - *100ml to 10 litres*

An automated lab reactor for standard and custom jacketed reaction vessels.

Lara is a versatile research tool, allowing chemists to use a single work station for a range of vessels and projects. Lara's easy-to-use Control Software allows users to design, log, recall and share recipes or experiments.

Automation & Control Features...

- Includes Radleys Control Software, Data Hub and Laptop Computer (see opposite).
- Log and control the integrated stirrer, plus external circulators, balances and pumps etc.
- LCD Remote Control for stirrer speed and monitoring of torque.

Hardware & Vessel Features...

- Integrated, low profile self aligning stirrer (control by either software or remote control).
- Single and vacuum jacketed vessels from 100ml to 10 litres.
- Range of process vessels to mimic larger scale plant or manufacturing reactors.
- Easy-to-order vessel kits with temperature probes and stirrer paddles matched to the vessel.
- Temperature range: -60ºC to +230ºC.

LCD Remote Control
- stirrer speed
- torque measurement

Integral Stirrer
- simple stirrer alignment
- hinged action
- low profile

Patented Stirrer Coupling
- drop in
- no tools & no fuss

Unique Vessel Clamp
- self centering
- quick release
- change vessels in minutes

Jacket Drain Down
- push button operation
- drain down in seconds
- no mess

Standard Vessels
- 100ml to 10 litres
- vacuum jacketed option
- glass accessories to match

Versatile framework
- compact footprint
- extremely stable
- built-in drip tray

Process Vessels
- mimic plant scale geometry
- 100ml to 10 litres
- vacuum jacketed option

Hose Couplings
- quick release
- connect in seconds
- chemical resistant PEEK

Bespoke vessels & accessories...

If there is not a vessel or stirrer from our standard range that meets your requirements, then we will be happy to make it for you. The list of options are almost endless, but here are some of our favourites....

- Split jackets and optical windows.
- Vessels with conical, dish or hemispherical bottoms.
- Fixed or removable baffles.
- Custom glass or PTFE lids.
- Vessels and lids modified to accept various PAT probes.
- Glass, metal and PTFE stirrer paddles.

PTFE Baffles

Optical Windows

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Control Software - *automate your reaction system*

Software allows users to log and control multiple devices and sensors.

Control and datalog...

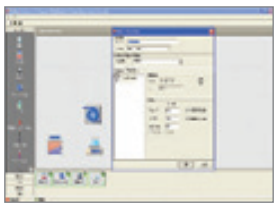
- Control and log Reactor-Ready, Reactor-Ready Duo & Lara CLR and other popular makes of reaction system.
- Integrate and control devices including: temperature sensors, overhead stirrers, circulators, balances, peristaltic pumps, syringe pumps, pH meters, vacuum pumps, flow meters, turbidity meters...
- Automatic data logging of experimetal results to .csv file for off-line anlaysis.

User friendly interface...

- Easy-to-use Windows format with intuitive drag'n'drop icons.
- Logical flowchart interface for new recipe and apparatus set-up.
- Graphical mimics of popular reactor set-ups.
- Real-time graphical display of data.

Create simple or complex experimental recipes...

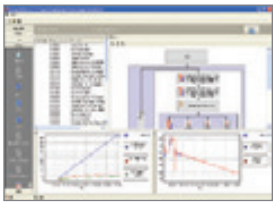
- Create recipes with any number of steps in series or parallel.
- Move to the next step in a recipe based on time, temperature, pH etc.
- Recipe and apparatus templates offer convenience and repeatability.
- Add comments or observations to the datalog file during your experiment.
- Stop, pause, skip and modify experiments mid run.
- User configurable alarms and emergency cut-off options for each device.
- Store, recall, share and analyse recipes and experimental results.
- License allows pre/post experimental work on other computers.



Integrate Apparatus

Create Recipe

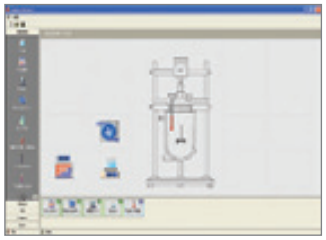
Control Experiment



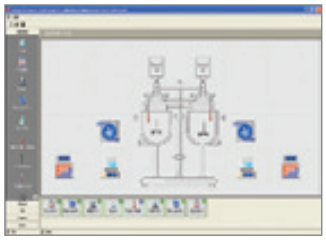
Analyse Results

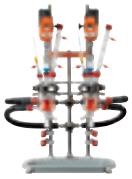
Control Software Kit

Control & log your lab reactor...

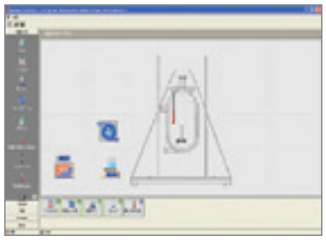


Reactor-Ready





Reactor-Ready Duo



Lara CLR

Custom Systems

Data Hub - *integrate RS232 devices*

The versatile Data Hub enables 3rd party equipment with an RS232 interface to be connected, controlled and logged via the Control Software.

Temperature Ports

Features...

- 4 x RS232 devices per Data Hub.
- 2 x Pt100 temperature sensor ports, with Lemo connection.
- Increase RS232 ports to 8 with a second Data Hub.
- Integrate up to 8 x RS232 devices including overhead stirrers, circulators, balances, peristaltic pumps, syringe pumps, pH meters, vacuum pumps, flow meters, turbidity meters etc...

Data Hub Specifications...

- 4 x RS232 serial ports.
- 2 x Pt100 temperature sensor ports, with Lemo connection.
- 1 x Ethernet port.
- 2 x Ethernet cables for PC and network connection options.
- LED communication indicators.

Pt100 & RS232 Ports

Power & Ethernet Connection