radleys
innovations for chemistry

Improving the productivity of your chemistry

2014 International Product Guide

Equipment for chemical synthesis, process development, evaporation and work-up

www.radleys.com

World leaders in innovative productivity tools for chemists

Radleys provide innovative chemistry equipment for safer, cleaner, greener and more productive chemical research.

We have been manufacturing scientific glassware and laboratory instruments for over 45 years and our customers include leading blue-chip industrial and academic research facilities around the world.

Our areas of expertise are focused on equipment for chemical synthesis, process development, work-up and evaporation.

Who uses Radleys?

If you are heating, cooling or stirring liquids, then you can benefit from the technology we offer.

The Radley benefits

- Increased throughput for improved productivity
- Savings in time, space and money
- Better yields and improved results
- Safer, cleaner and greener working practices
- Reliable and reproducible results

Doing it differently

We believe that forward thinking scientists and chemists are always seeking better ways of doing what they do.

Our team of R&D chemists and engineers look at every detail of the chemistry workflow, to identify what changes can be made to improve the methods, apparatus and glassware that are used everyday.

Chemistry and hi-tech engineering

Indeed, it is this unique blend of chemistry and engineering expertise that has allowed us to develop many of the successful and innovative solutions we offer today.

Better = Change = Doing it differently

Partnerships

In the UK we are master distributors for the full range of Huber thermoregulators and Heidolph benchtop instruments.

Heidolph UK

huber uk

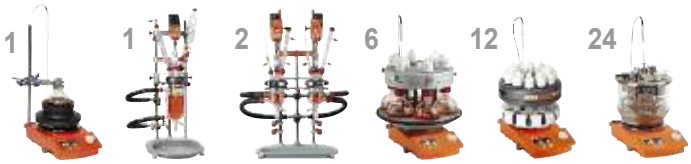
Scale

From RESEARCH... ...to DEVELOPMENT

From BENCHTOP... ...to PRODUCTION

Positions

From SINGLE... ...to PARALLEL



From 1... ...to 24

Temperature

From ICE... ...to CIRCULATORS

From -120˚C... ...to +425˚C

Volume

From VIALS... ...to JACKETED VESSELS

From 0.1ml... ...to 50 litres

Stirring

From MAGNETIC... ...to MECHANICAL

From 30rpm... ...to 2000rpm

Control

From MANUAL... ...to AUTOMATION

From DIY... ...to SOFTWARE CONTROL

Benchtop and Hotplate Tools

Findenser Air Condenser
Page 4


Heat-On Block System
Page 5


Cool-It Insulated Bowls
Page 6


StarFish Work Station
Page 7


Carousel Stirring Hotplates
Page 8


RS Overhead Stirrers
Page 9


Control Software

Control Software & data Hub
Page 26


Parallel Reaction Stations

Carousel 12 Plus Reaction Station
Page 10


Cooled Carousel 12 Plus Reaction Station
Page 11


Carousel 6 Plus Reaction Station
Page 12


Cooled Carousel 6 Plus Reaction Station
Page 13


Carousel Work-Up Station
Page 19


GreenHouse Plus Parallel Synthesiser
Page 16


Cooled GreenHouse Plus Parallel Synthesiser
Page 16


GreenHouse Work-Up Station
Page 18


GreenHouse Blowdown Evaporator
Page 17


Tornado Overhead Stirrer
Page 14


Storm Work Station
Page 15


Breeze Work Station
Page 15


Jacketed Lab Reactors

Lara Controlled Lab Reactor
Page 24


Reactor-Ready Lab Reactor
Page 22


Reactor-Ready Duo Lab Reactor
Page 23


Custom Jacketed Reaction Systems
Page 21

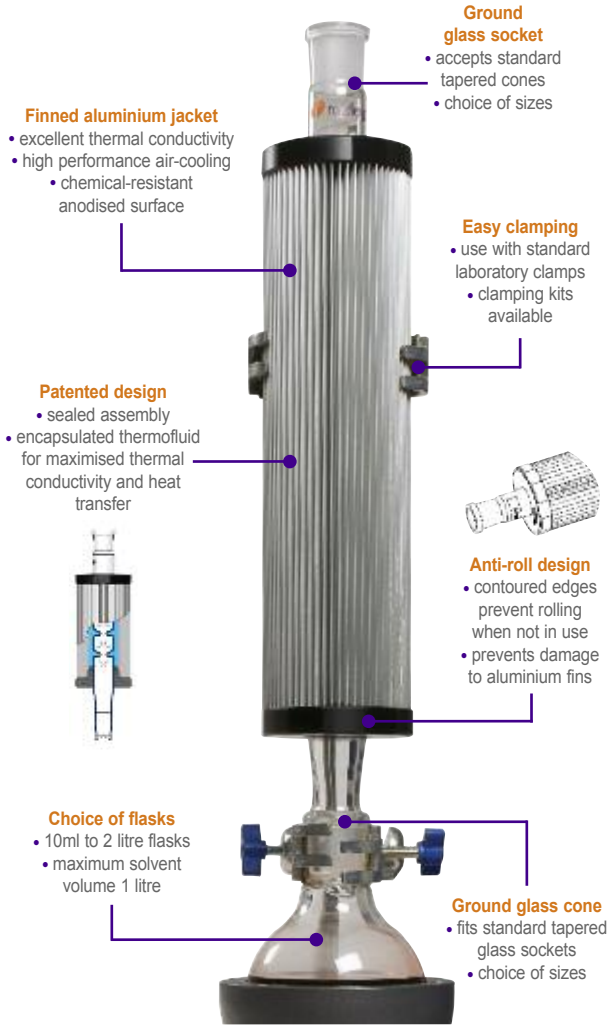

Reactor-Ready Pilot Lab Reactor
Page 25


Findenser™ - *saves water and prevents flooding*

Replaces water-cooled condensers in over 95% of common chemistry applications.

How does Findenser work?

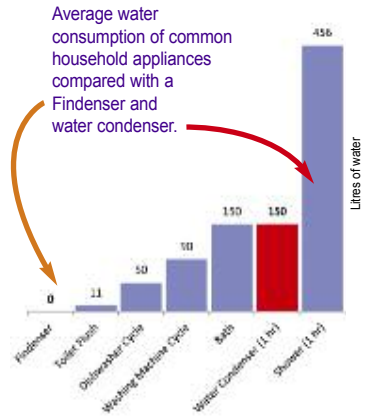
- Findenser comprises of an internal glass condenser and an external, finned aluminium jacket, between which a small amount of water is permanently sealed.
- The glass condenser design has a greater internal surface area than traditional air condensers, increasing heat transfer capacity.
- The finned jacket fits around the glass condenser, further increasing the external surface area.
- The result is a '*SUPER* air condenser'.



Findenser requires no running water to operate. Water is a precious resource. It makes little economic or environmental sense to waste thousands of litres just to cool a single condenser.

What are the benefits?

- No risk of flooding from running water
- Eliminate the cost of water purchase and disposal
- For solvent volumes from 5ml up to 1 litre
- Helps meet sustainable water reduction targets



Choice of B14, B19, B24 and B29 joint sizes


B14


B19


B24


B29

Performance testing

A range of solvents, in identical flasks and set-ups, were tested with a Findenser, water condenser and air condenser to record solvent loss by weight.

Findenser Compared with an air condenser

For synthesis with 'low' boiling point solvents, Findenser showed a significant improvement in solvent retention. With acetone or DCM the reaction boiled dry when using an air condenser, yet Findenser retained 95% of the solvent under the same conditions.

For synthesis with 'medium' boiling point solvents, Findenser delivered improved solvent retention particularly with larger volumes and high temperatures.

Findenser compared with a water condenser

Under identical conditions, Findenser retained solvent to the same level as a water condenser (with the exception of diethyl ether).

500ml solvent in 1000ml flask, 16 hours, heating 10˚C above boiling point for each solvent			
Solvent Loss Water Condenser	Boiling Point	Solvent	Solvent Loss Findenser
0.9%	40˚C	DCM	0.6%
0.7%	55˚C	Me tBu Ether	0.4%
0.4%	56˚C	Acetone	0.3%
0.2%	65˚C	MeOH	0.2%
0.2%	66˚C	THF	0.2%
0.1%	77˚C	EtOAc	0.1%
0.1%	78˚C	EtOH	0.05%
0.1%	82˚C	CH_3CN	0.1%

Results based on a standard Findenser

Radleys Shire Hill, Saffron Walden, Essex, CB11 3AZ. United Kingdom

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

The safest, fastest and most efficient way to heat and stir round bottom flasks from 10ml to 5 litres.

Heat-On Multi-well Block 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.

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. Scientists are increasingly turning to specially designed aluminium blocks located on stirring hotplates to heat standard round bottom flasks.

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 block life, is easy to clean and speeds up heating 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

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.

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

Heat-On Multi-well Block and Inserts

250ml Heat-On block

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 surfaces by up to 50%.
- PTFE insulation reduces energy consumption by 15%.
- Chemically-resistant PTFE withstands temps. up to 260˚C.
  - 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

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

- 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.

Small Cool-It bowl for flasks up to 400ml

Large Cool-It bowl for flasks up to 2 litres

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 provides excellent insulation and (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 (both with own lid)
Small Cool-It bowl for flasks up to 400ml
Large Cool-It bowl for flasks up to 2 Litres.

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.

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
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).

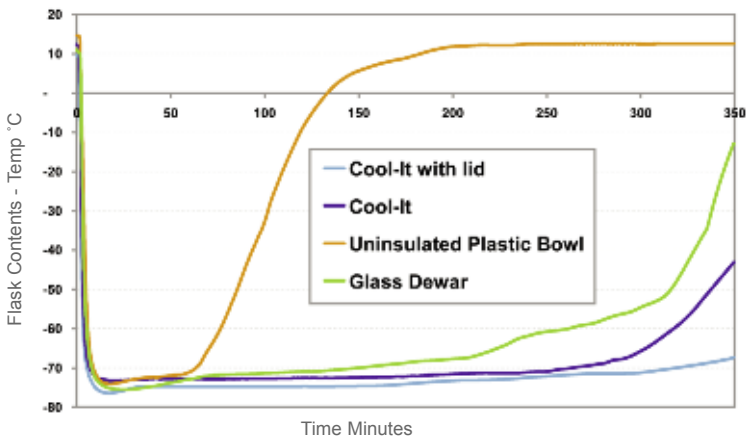
Cool-It accessories
Accessories include; clamp, stand, digital thermometer, scoop, protective gloves, apron and face shield.

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

Easy pour design with spout and handle

Cool-It vs. Glass Dewar

Acetone and dry ice, 250ml flask, 100ml acetone



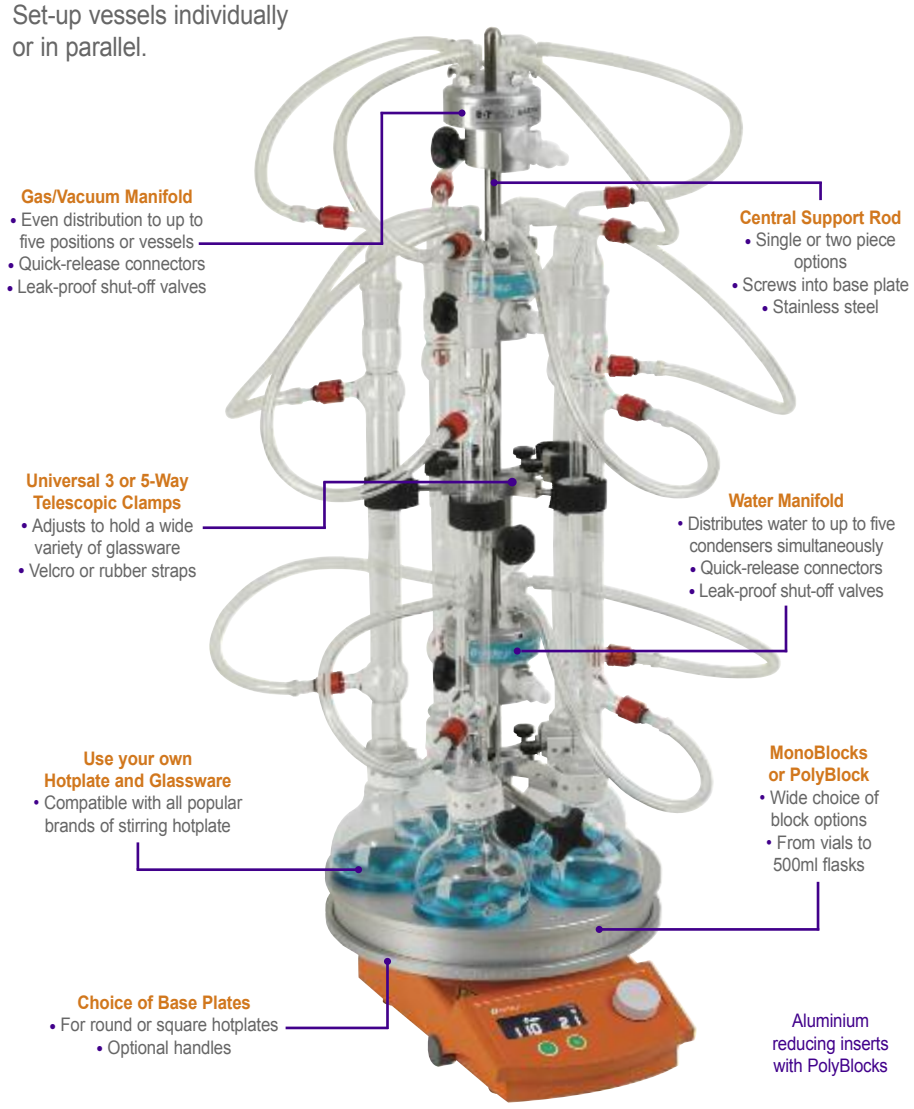
StarFish™ Multi-Experiment Work Station - *the space saver*

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

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

Features

- Fits all leading brands of stirring hotplate.
- Accepts vials, test tubes, beakers and flasks.
- Set-up vessels individually or in parallel.



Gas/Vacuum Manifold
- Even distribution to up to five positions or vessels
- Quick-release connectors
- Leak-proof shut-off valves

Central Support Rod
- Single or two piece options
- Screws into base plate
- Stainless steel

Universal 3 or 5-Way Telescopic Clamps
- Adjusts to hold a wide variety of glassware
- Velcro or rubber straps

Water Manifold
- Distributes water to up to five condensers simultaneously
- Quick-release connectors
- Leak-proof shut-off valves

Use your own Hotplate and Glassware
- Compatible with all popular brands of stirring hotplate

MonoBlocks or PolyBlock
- Wide choice of block options
- From vials to 500ml flasks

Choice of Base Plates
- For round or square hotplates
- Optional handles

Aluminium reducing inserts with PolyBlocks

Applications

- Heating and stirring
- Synthesis
- Distillation
- Extraction
- Digestion
- Concentration

Space saving
Uses less space than multiple heating and stirring set-ups.

Increases productivity
Multiple positions allow you to heat, stir and reflux experiments in parallel.

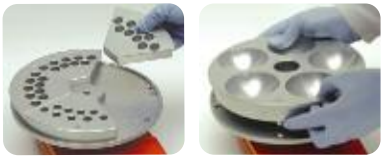
Cost effective
Use your existing stirring hotplate and glassware. Eliminate the cost of multiple set-ups.

Safer, cleaner working
Eliminate oil baths, reduce spills, mess and accidents.

Flexible
Use as many positions as you want.

Easy to use
Easy to store and quick to assemble.

Compact
Store spare components in a drawer and not on the bench.



PolyBlock MonoBlock

Mix'n'match the components you need, when you need them

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.

Features

- 800 watt heating power.
- Heating range: 20 to 300°C.
- Speed range: 30 - 1400rpm.
- Chemically-resistant Kera-Disk top plate.
- 135mm top plate diameter.
- 3 year warranty.

New Standard with Pt1000 01/04/14

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 for easy visibility.
- 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 Pt1000 temperature sensor with stainless steel or glass coated probe.

Carousel Standard

Carousel Tech Stirring Hotplate

All Carousel Standard features, plus:

- 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 Pt1000 temperature sensor with stainless steel or glass coated probe: with ± 1K accuracy.

Carousel Tech

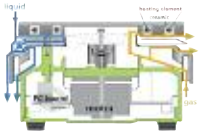
BEST SELLER

Carousel Advanced Stirring Hotplate

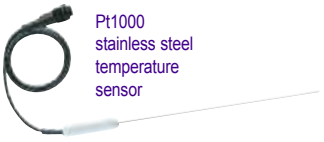
All Carousel Tech features, plus:

- 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 heating at an operator pre-determined value.

Carousel Advanced



Hermetically Sealed Housing for long life



Pt1000 stainless steel temperature sensor

Convenient packages are available which include all popular accessories

	Carousel Standard	Carousel Tech	Carousel Advanced
Speed, max (rpm)	100 to 1400	100 to 1400	30 to 1400
Speed accuracy (%)	± 2	± 2	± 1
Display	-	Digital	Digital
Analogue/digital interface (RS232)	-	-	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	Pt 1000	Pt 1000	Pt 1000
Temp. accuracy with external temp. sensor (K)	± 1	± 1	± 0.2
Sensor breakage protection	With Pt 1000	With Pt 1000	With Pt 1000
Temperature control	Micro controller	Micro controller	Micro controller
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
Top Plate material	Kera-Disk (Silumin with ceramic coating)	Kera-Disk (Silumin with ceramic coating)	Kera-Disk (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

Includes 3 YEAR warranty

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.

Features

- Powerful stirring from 40 to 2000 rpm.
- Smooth start, which prevents splashing and spills.
- Lightweight, easy to set-up and use.
- 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.
- Sealed housing helps prevent internal corrosion from aggressive liquids and vapours and ensures years of maintenance-free operation.
- Sparkless motors reduce potential risks in volatile environments.

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

- 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.

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.
- Allows calibration of torque during your process to monitor viscosity changes over time.
- RS232 interface for remote control or via PC .

RS100 Control Plus for constant speed under changing loads

- Digital display of torque and speed.
- 2 gears, 12 to 2,000 rpm.
- Viscosity range up to 100,000 mPa s.
- 100 W power and torque of 400 Ncm in an overload situation. 200 Ncm for continuous operation.
- Maintains constant speed even under significant load changes.

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.

Includes 3 YEAR Warranty

	RS27 Standard	RS37 Digital Plus	RS50 Control	RS100 Control Plus
Power input/output (W)	50/27	70/37	80/50	140/100
Gears	2	2	1	2
Speed range (rpm)	40 - 400 200 - 2,000	40 - 400 200 - 2,000	50 - 2,000	12 - 400 60 - 2,000
Speed indicator	Analogue	Digital	Digital	Digital
Speed control	Mechanical	Mechanical	Electronic	Electronic
Maximum torque (Ncm)	400	520	20 (40 overload mode)	200 (400 overload mode)
Power reserve under overload (%)	-	-	200	200
Torque indicator (Ncm)	-	-	Digital	Digital
Viscosity up to (mPa s)	60,000	100,000	10,000	100,000
Stirring cap. H_2O up to (l)	25	40	40	100
RS232 interface	-	-	Yes	Yes
Shaft diameter up to (mm)	10	10	10	10
Stay bar size (dia. x l)	13 x 160	13 x 160	13 x 160	13 x 160
Weight (kg)	3.0	3.3	2.8	3.7
Dimension w x h x d (mm)	82 x 206 x 176	82 x 211 x 176	72 x 206 x 176	82 x 211 x 176
Protection class (DIN EN 60529)	IP 40	IP 40	IP 40	IP 40
Supply voltage	230V / 50Hz	230V / 50Hz	230V / 50Hz	230V / 50Hz

RS27 Standard Overhead Stirrer

RS37 Digital Plus Overhead Stirrer

RS50 Control Overhead Stirrer

RS100 Control Plus Overhead Stirrer

Remote Control

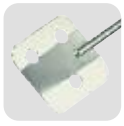
Telescopic Stand

Boss Clamp

Visco Jet 60mm ø S/S

Visco Jet 80mm ø POM

Visco Jet 120mm ø S/S



Square Blade Stirrer

Collapsible Blade Stirrer

Pitched Blade Stirrer

Ringed Stirrer

Radial Flow Stirrer

Crossed Blade Stirrer

PTFE Anchor

PTFE Turbine

PTFE Retreat Curve

Simple and 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™

The patented Carousel 12 Plus simultaneously heats/cools, stirs and refluxes multiple samples under an inert atmosphere.

An effective personal synthesis station for parallel solution phase chemistry and solid supported reagent based synthesis.

220˚C

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

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

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.

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 reaction tubes.

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

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

Fluoropolymer coating for chemical resistance and easy cleaning.

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

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

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.

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

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

Radleys Shire Hill, Saffron Walden, Essex, CB11 3AZ. United Kingdom

Cooled Carousel 12 Plus Reaction Station™

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 reaction tubes to be easily and rapidly transferred between heating and cooling bases.

Features

- Simultaneously performs 12 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

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.

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.

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 12 cooled and stirred reactions to -78˚C.

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

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

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 integrates with the Carousel 6 Plus 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 14

Carousel 6 Plus Reaction Station™

The patented Carousel 6 Plus simultaneously heats, stirs and refluxes multiple samples under an inert atmosphere.

Accepts round bottom flasks including: 5ml, 10ml, 25ml, 50ml, 100ml, 170ml & 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.

Heated directly by the stirring 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 stainless 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, 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

Cooled Carousel 6 Plus Reaction Station™

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

The Cooled 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.

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

Features

-78˚C

- 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 reactions cooler for longer, minimises ice formation on 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.

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.

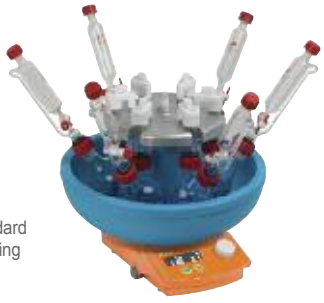
Robust HDPE cooling reservoir is compatible with a wide range of freezing mixtures including dry-ice/acetone for manually controlled cooling from ambient to -78˚C.

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 and PTFE Cap

170ml Reaction Flask Reflux Tube and PTFE Cap

250ml Reaction Flask Reflux Tube and PTFE Cap

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

Tornado with 250ml wide neck flasks

Tornado™ Overhead Stirring System

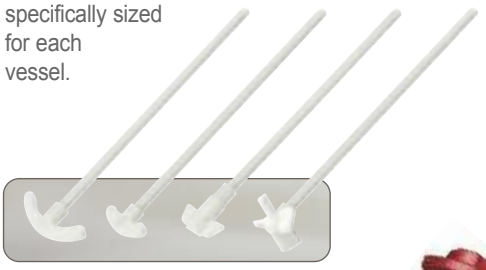
Use a single overhead stirrer to stir up to six round bottom flasks from 50ml to 250ml simultaneously. Increase your stirring productivity by up to 600%

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
- Max. viscosity 10,000mPas at 500rpm.

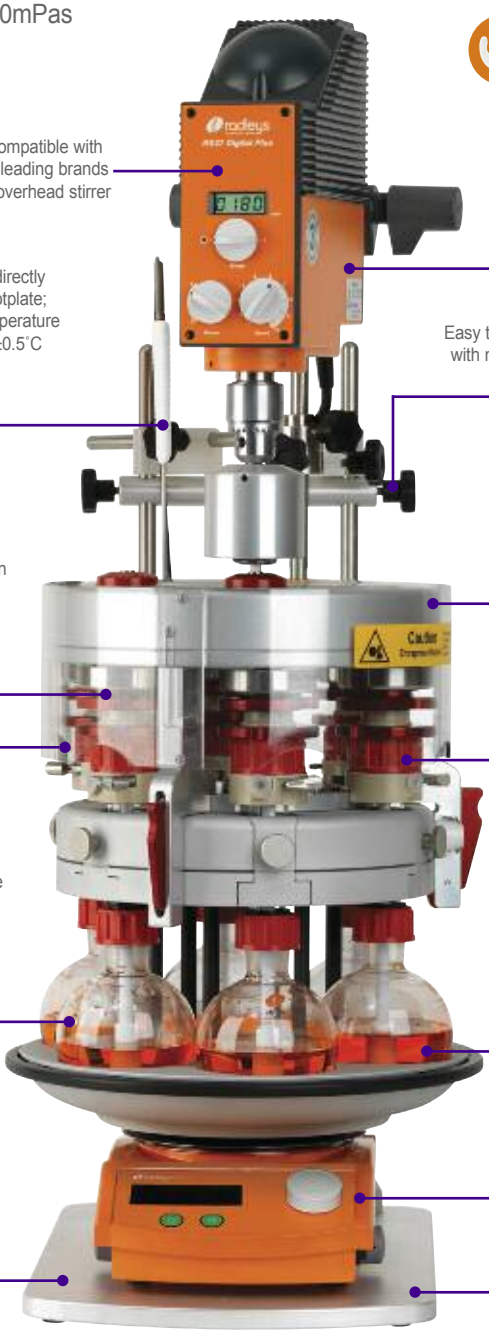
PTFE Stirring Shafts
Choice of centrifugal, anchor and propeller PTFE stirrers, specifically sized for each vessel.



Choice of flask sizes and styles; with wide neck option
Wide neck flasks allow easier removal of viscous and solid samples and the use of larger stirrer blades. Baffles also improve stirring by disrupting the creation of a vortex.

Azeotropic Vessels
250ml Azeotropic (Dean & Stark) flask option.

250ml Azeotropic vessel with dropping funnel and centrifugal PTFE stirrer



Radleys Shire Hill, Saffron Walden, Essex, CB11 3AZ. United Kingdom

Breeze™ Heating/Cooling Work Station

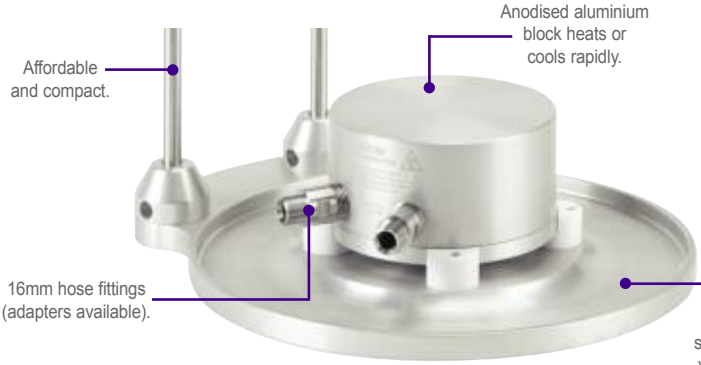
Combined with a circulator, the compact Breeze provides rapid heating/cooling and is ideal for applications requiring precise control by solution temperature

Designed as an add-on module for the Carousel 6 Plus and Tornado, Breeze creates a 'Parallel Process Reactor' for controlled heating and cooling. Breeze is ideal for applications that require fast and precise solution temperature control, such as crystallisation studies.

-30˚C 165˚C

Features

- Thermofluid -85°C to +235°C; providing a solution temperature of -30°C to +165°C.
- 135mm ø top plate integrates with the Carousel 6 Plus, Tornado, and Heat-On.
- Breeze's small internal volume ensures a quick response to changes in thermofluid temperature.



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

Storm™ Heating/Cooling Work Station

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

-65˚C 200˚C

Designed as an add-on module for the Carousel 6 Plus and Tornado combination, creating a powerful 'Parallel Process Reactor' for controlled heating and cooling, making it the ideal process optimisation and development tool.

Features

- Thermofluid -85°C to +235°C; providing a solution temperature -65°C to +200°C.
- 135mm ø top plate integrates with the Carousel 6 Plus, Tornado and Heat-On.
- Unique internal design maximises heat transfer whilst the insulated outer case reduces heat loss and prevents contact with hot/cold thermofluid.

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

Carousel 6 locates on to the Storm without tools

GreenHouse Work-Up provides 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.

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 (MTP), 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.

Designed for the synthesis of small compound libraries and drug discovery

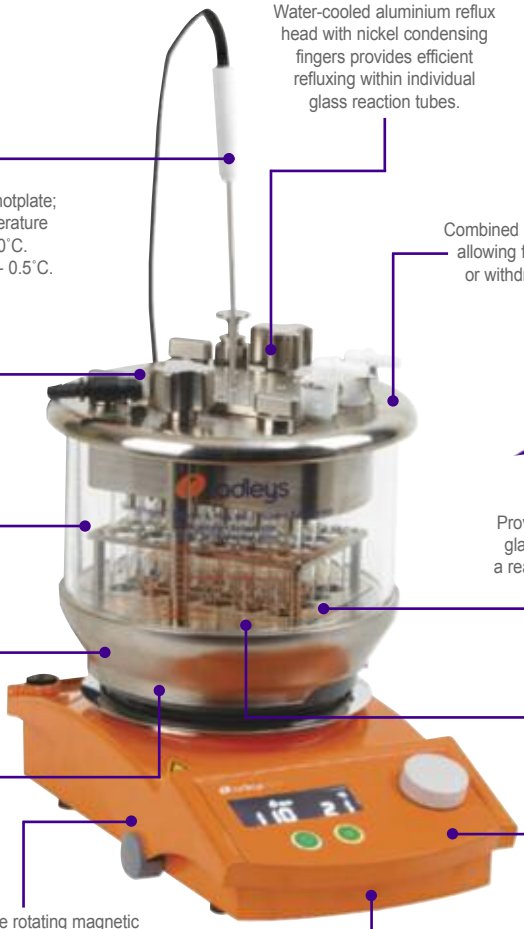
Water-cooled aluminium reflux head with nickel condensing fingers provides efficient refluxing within individual glass reaction tubes.

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 choice of septum mats are available.



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

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.

"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.

Combined Reflux and Additions head with nickel condensing fingers

GreenHouse Plus allows additions and withdrawals through sealing mats

Reaction block fits directly into Genevac vacuum centrifuges

Radleys Shire Hill, Saffron Walden, Essex, CB11 3AZ. United Kingdom

GreenHouse Blowdown Evaporator™

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

Features

- Precise control of inert gas flow combined with digital control of heating carefully evaporates 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.

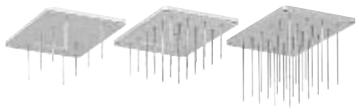
Safety relief valve on inlet prevents over-pressure during operation.

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

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

...or use the dedicated, low profile, Blowdown Base.

Blowdown Base and 24 Position Vial Rack

Blowdown Base and 8 Position Vial Rack

Blowdown Base and 24 Position MTP

24 Position Parallel Work-Up

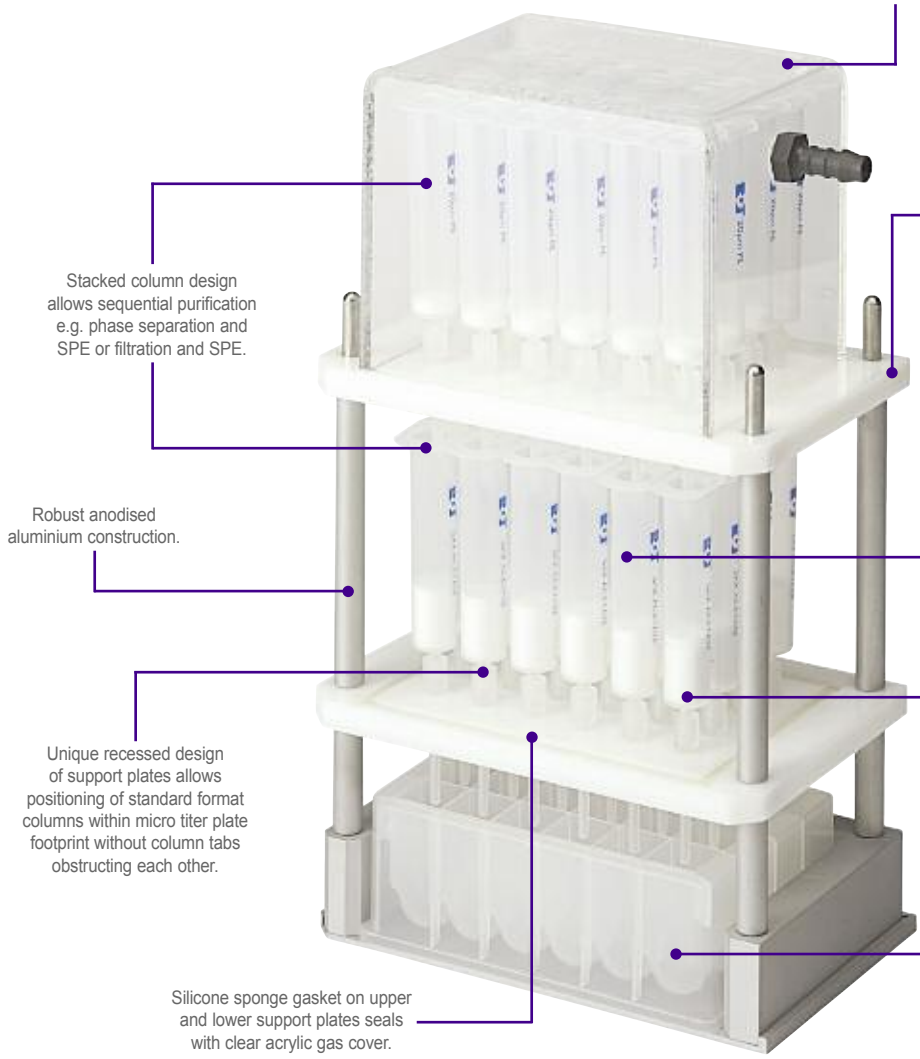
Designed to make your parallel chemistry work-up and purification quick and easy.

GreenHouse Work-Up Station™

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.



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

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.

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.
- SpeediFlow Booster increases flow rates to speed up your work-ups.

12 Position Parallel Work-Up

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

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.

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

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

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 collection 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

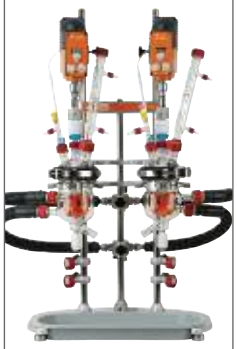
Pull out the locking pin, release the handle

...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®.

Jacketed Reaction System Quick Guide

					
Jacketed Reaction Systems		Reactor-Ready	Reactor-Ready Duo	Lara CLR	Reactor-Ready Pilot
Custom Reaction Systems	**Reaction System Kits**	**Lab Reactor**	**Dual Lab Reactor**	**Controlled Lab Reactor**	**Pilot Scale Lab Reactor**
Custom designed reaction systems and frameworks	Traditional reactor kits with floor or bench standing frameworks	Innovative, reactor work station. Rapid vessel exchange.	Innovative, two vessel reactor work station. Rapid vessel exchange.	With integrated stirrer, software and remote control. Rapid vessel exchange.	Innovative pilot scale reactor work station. Rapid vessel exchange.
100ml to 50 litre	100ml to 20 litre	100ml to 5 litre	100ml to 5 litre	100ml to 10 litre	5 litre to 20 litre
-70˚C to +230˚C	-70˚C to +230˚C	-70˚C to +230˚C	-70˚C to +230˚C	-70˚C to +230˚C	-70˚C to +230˚C
User Profile					
Chemists or chemical 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 or chemical engineers requiring an automated reactor to accommodate a variety of vessel volumes & designs	Chemists or chemical engineers working in process development, scale-up, pilot and kilo labs
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	Reactor work station that can be easily used for different vessels and experiments
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 with lid in-situ	Convenient and quick reactor exchange and stirrer alignment
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, easy to use and with a variety of vessel volumes	Integrated self aligning overhead stirring with digital speed and torque display	Off-the-shelf, quick to set up, easy to use and with a variety of vessel volumes
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	Can be customised to integrate other accessories and software control

Radleys Control Software and 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

Jacketed Reaction Systems - *100ml to 50 litres*

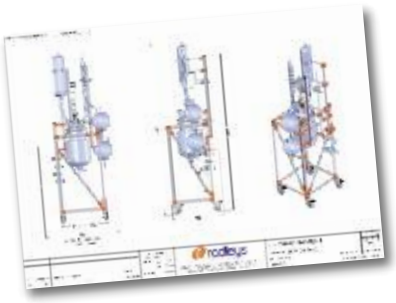
Bespoke custom reaction systems designed to meet your specifications.

Radleys are experts in the design and manufacture of exceptional quality scientific glassware. We have a long history (over 45 years) of working with chemists and chemical engineers in the leading industrial and academic research facilities around the world. 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.

Scope of our services

- In-house design and manufacture
- Frameworks and supports
- Thermoregulators, chillers and circulators
- Overhead stirrers, sensors and probes
- Datalogging and software control
- Installation and training

Automation and software control



In-house design and manufacture of vessels

Vessels

- Single and vacuum jacketed
- Jacketed vessels to 50 litres
- Vacuum jacketed vessels to 20 litres
- Tall, squat and process vessel geometries
- Cylindrical or spherical vessels
- Conical, dish and hemispherical vessel bottoms
- Stainless steel, hastelloy and PTFE vessels
- Vessels with: optical windows or split jackets
- Vessels with: fixed or removable filters or sinters
- Glass or PTFE lids

Systems

- Multi-reactor systems for parallel synthesis
- Fermenters, bioreactors and photoreactors
- Condensers, distillation assemblies, scrubbers

Accessories

- Thermoregulators with supply and servicing
- Thermofluids, hoses and adapters
- Overhead stirrers: electrical and air-powered
- Stands, supports and frameworks

Simply tell us what you need

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

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

Swap reaction vessels in minutes, **not** hours

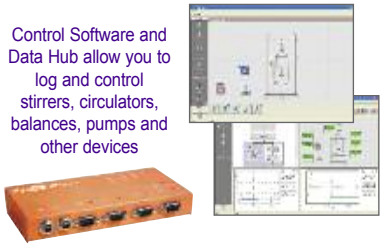
-70˚C 230˚C

Reactor-Ready is designed as a universal reactor work station with a range of easily interchangeable vessels from 100ml to 5 litres which can be configured to suit the chemistry and scale needed for each project. Easy to use, this one unique framework can replace many, saving money and fumehood space.

Features

- Rapid, tool-free 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: -70ºC to +230ºC.
- Wide range of accessory glassware including condensers, dropping funnels etc.
- Optional software allows you to log and control stirrers, circulators, balances, pumps, temperature sensors and other devices.

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



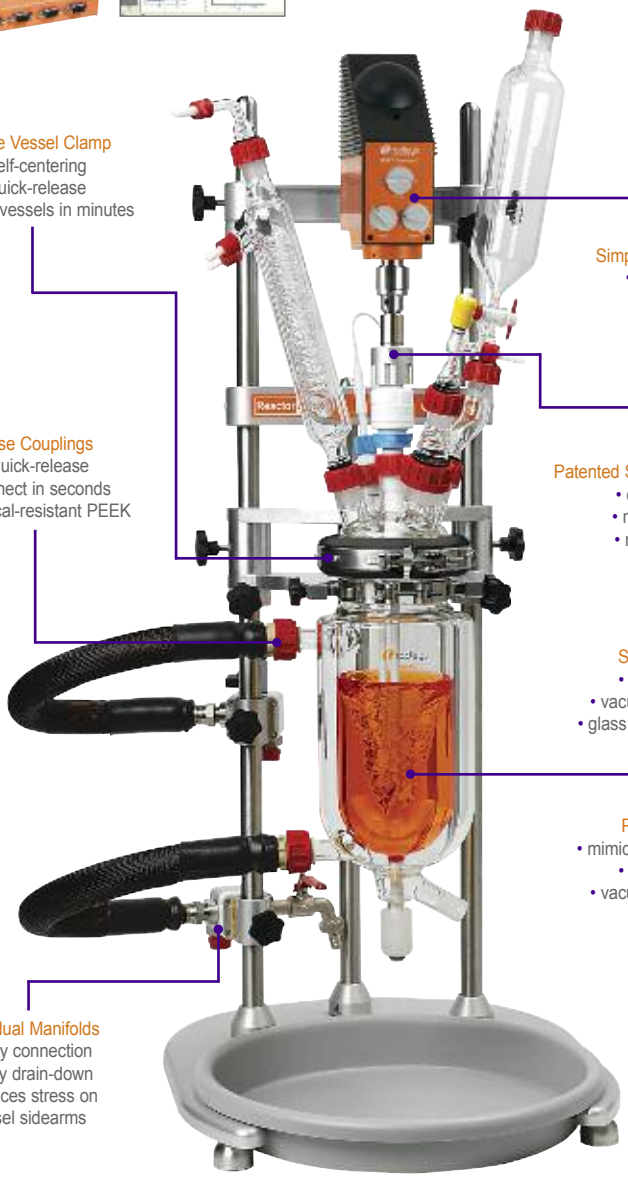
Swap vessels in minutes, **not** hours

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

Simple Stirrer Alignment
- slide and glide
- set and lock

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

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



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

Vessels interchangeable

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

A choice of popular stirrer paddles

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

Radleys Shire Hill, Saffron Walden, Essex, CB11 3AZ. United Kingdom

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

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

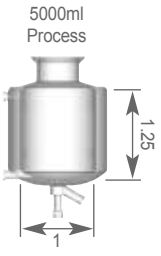
Reactor-Ready Duo shares the same unique features as Reactor-Ready but holds two independent jacketed glass reaction vessels. The system can be configured to operate with a single thermoregulator controlling the jacket temperature of both vessels simultaneously; or with two thermoregulators controlling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

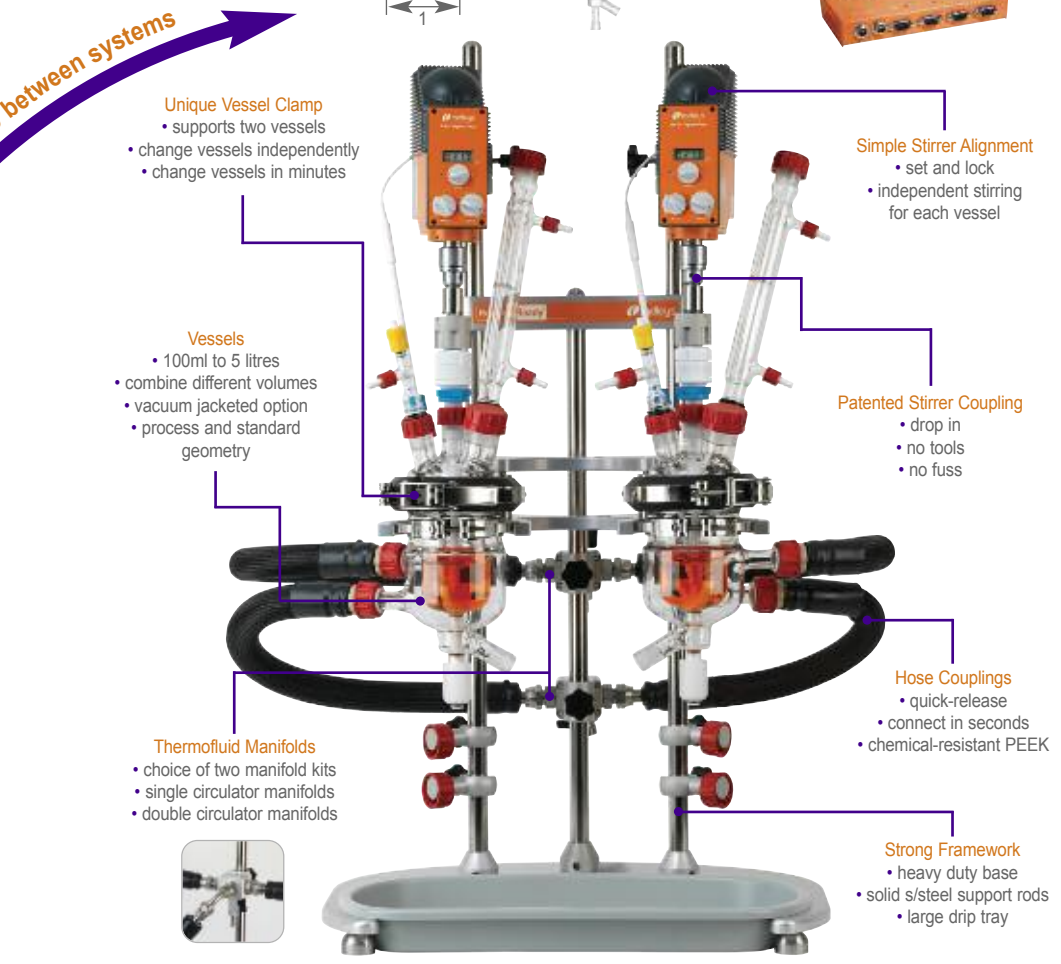
Applications

- 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 and control devices



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.

-70˚C 230˚C

Automation and Control Features

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

Hardware and 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: -70ºC to +230ºC.

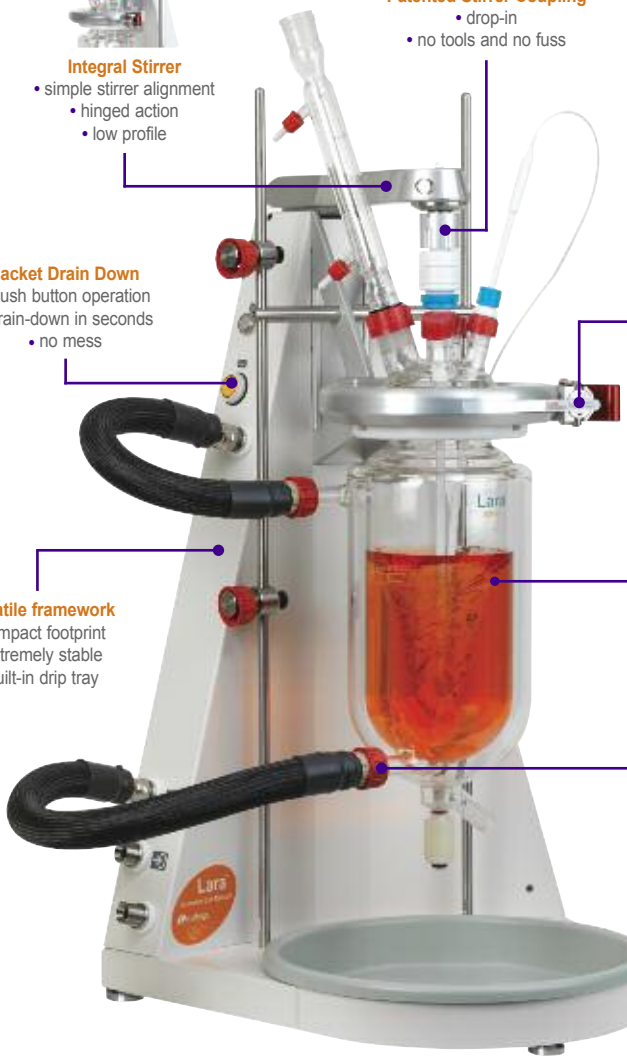
LCD Remote Control
- stirrer speed
- torque measurement

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

Patented Stirrer Coupling
- drop-in
- no tools and 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

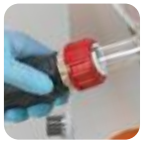


Standard Vessels
- 100ml to 10 litres
- vacuum jacketed option
- glass accessories to match

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 and 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

Radleys Shire Hill, Saffron Walden, Essex, CB11 3AZ. United Kingdom

Reactor-Ready™ Pilot - *5 to 20 litres*

Replace multiple reactor set-ups with a single, universal pilot scale system with interchangeable vessels that can be swapped in minutes not hours.

Reactor-Ready Pilot is ideal for process development, scale-up, pilot and kilo labs.

Features

- Rapid vessel exchange with quick-release vessel clamp and wide bore hose couplings.
- Range of single and vacuum jacketed vessels from 5 litres to 20 litres.
- Vessels have 1.25 to 1 ratio of internal height to diameter to mimic plant scale reactors.
- DN200 vessel flange.
- Accepts all leading brands of overhead stirrer and allows easy, tool-free adjustment.
- Compact stainless steel framework accepts all vessel sizes.
- Self-aligning stirrer coupling engages without the need for tools.
- Temperature range: -70ºC to +230ºC.
- Innovative hose manifolds allow easy thermofluid drain down.

Reactor-Ready Pilot with 20 litre Vacuum Jacketed Vessel

Simple Stirrer Alignment
- 6 axis adjustment
- slide and glide
- set and lock

Universal Stirrer Support
- accepts all leading brands of overhead stirrer

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

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

Standard Jacketed Vessels
- 5, 10, 15 and 20 litres
- single and vacuum jacketed options
- zero dead space drain
- ratio 1.25 to 1

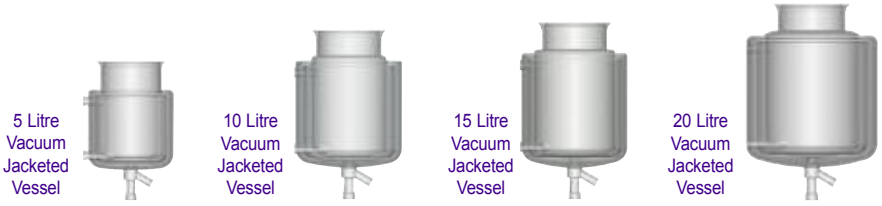
Hose Couplings
- chemical-resistant PEEK
- quick-release
- connect in seconds
- 20mm ID for good heat exchange

Custom Vessels
- to your specific size and style
- in-house manufacturing
- mimic plant scale geometry

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

Compact, Mobile Framework
- corrosion-resistant stainless steel, anodised aluminium or powder-coated steel
- castors as standard

Reactor-Ready Pilot with 10 litre Vacuum Jacketed Vessel



5 Litre Vacuum Jacketed Vessel

10 Litre Vacuum Jacketed Vessel

15 Litre Vacuum Jacketed Vessel

20 Litre Vacuum Jacketed Vessel

How to order Reactor-Ready Pilot

1. Select the Reactor-Ready Pilot Core.

2. Choose the lid you require (custom options available).

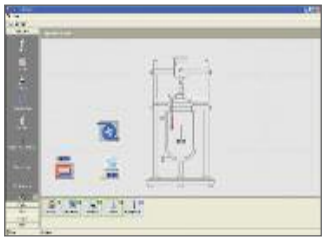
3. Choose the Vessel Kits you need.

4. Select the overhead stirrer you need.

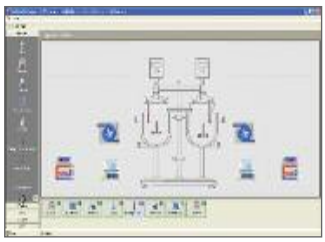
5. If you need a thermoregulator, hoses, hose adapters, thermofluid or accessory glassware, then select from the accessory list.

6. If you need automation add the Control Software and Data Hub.

Control and log your lab reactor



Reactor-Ready



Reactor-Ready Duo

Lara CLR

Custom Systems

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 and 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 and flow meters.
- Automatic data logging of experimental results to .csv file for off-line analysis.

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.

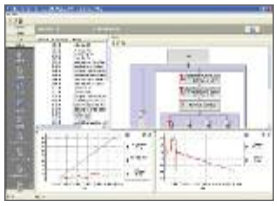
Create simple or complex experimental recipes

- 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

NEW Economy 2 Port RS232 Data Hub

2 and 4 RS232 port options

Power & Ethernet Connection

Data Hub - *integrate RS232 devices*

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

Features

- 4 Port Data Hub - 4 x RS232 ports and 2 x Pt100 sensor ports.
- 2 Port Data Hub - 2 x RS232 ports and 2 x Pt100 sensor ports.
- Combine two data hubs to increase capacity.
- Integrate devices including overhead stirrers, circulators, balances, peristaltic pumps, syringe pumps, pH meters, vacuum pumps, flow meters etc.

Data Hub Specifications

- 2 or 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.

Some of our favourite customers

This is a list of some of our recent customers. All logos and copyright remains with the owner. The use of these logos does not constitute an endorsement by any of the companies or organisations illustrated.

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