

2018 International Product Guide

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



World leaders in innovative productivity tools for chemists

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

We have been manufacturing scientific glassware and laboratory instruments for over 50 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 Radleys 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 high-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.

Partnerships

In the UK we are the Premium Distributor for the full range of Heidolph Instruments, and a master distributor for Huber Thermoregulators.

heidolph UK
research made easy

huber

Scale	From RESEARCH...	...to DEVELOPMENT
		
Position	From BENCHTOP...	...to PRODUCTION
		
Temperature	From SINGLE...	...to PARALLEL
		
Volume	From 1...	...to 24
		
Temperature	From DRY ICE...	...to CIRCULATORS
		
Volume	From -120 °C...	...to +425 °C
		
Volume	From VIALS...	...to JACKETED VESSELS
		
Volume	From 0.1 ml...	...to 20 litres
		
Stirring	From MAGNETIC...	...to MECHANICAL
		
Stirring	From 30 rpm...	...to 2000 rpm
		
Control	From MANUAL...	...to AUTOMATIC
		
	From DIY...	...to SOFTWARE CONTROL
		

Benchtop and Hotplate Tools

Findenser
Air Condenser

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Control Software

AVA Lab Control Software
and Data Hub

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Parallel Reaction Stations

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Cooled Carousel 12
Plus Reaction Station

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Cooled Carousel 6
Plus Reaction Station

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Carousel
Work-Up Station

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GreenHouse
Plus Parallel
Synthesiser

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GreenHouse
Blowdown
Evaporator

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GreenHouse
Work-Up
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Tornado
Overhead
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Storm
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Breeze
Work
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Automated Reaction Station

Mya 4 Reaction
Station

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Jacketed Lab Reactors

Custom Jacketed
Reaction
System

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Reactor-Ready
Lab Reactor

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Reactor-Ready
Duo Lab
Reactor

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Reactor-Ready
Pilot Lab
Reactor

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Mya 4™ Reaction Station

One reaction station with limitless possibilities

A 4-zone reaction station offering safe and precise heating, active cooling, software control and data-logging for 24/7 unattended chemistry



Features

- 4 Independent zones - each with heating and active cooling
- Magnetic and overhead stirring
- -30 °C to +180 °C
- 2 ml to 400 ml - wide range of vessel styles
- Software - control and log results automatically



Safer, cleaner, greener and more productive

- Replace inefficient, messy and unsafe oil and ice baths
- Save space compared with separate reaction set-ups
- Software control improves safety, reduces manual errors, and allows 24/7 unattended chemistry, for increased productivity
- Create, repeat and share experiments and results with ease and accuracy
- Easily manage complex multi-step and multi-device experiments
- Integrate 3rd party devices such as syringe pumps, pH sensors, peristaltic pumps, balances, vacuum pumps, gas flow controllers and pressure sensors



Touch-screen
Control Pad



Wide range of vessel styles and sizes

- 2 ml to 400 ml
- Vials, tubes, round bottom flask and straight sided process vessels

Mya Compact Stirrer

- Stirs from 100 to 1000 rpm
- Control each position independently
- Powerful, high torque motor
- Tool-free attachment

Excellent visibility

- Easily view your vessel contents

Up to 200 °C difference in adjacent zones

- High performance insulation minimises zone cross-talk

Cool to -25 °C with tap water

- No need for a separate chiller
- Powerful Peltier technology provides rapid cooling

Magnetic stirring from 100 to 1000 rpm

- Control each position independently

Touch-screen Control Pad

- Supplied as standard
- Intuitive and easy to use
- Set automated profiles or use manual control

Temperature -30 °C to +180 °C

- Independent control of each zone
- Block or solution control
- Pt100 temperature probes

Manifold Head

- Distributes water for glass condensers
- Distributes inert gas



Reflux Head

- Water-cooled
- Efficient refluxing
- Distributes inert gas



Optional PC Control Software

- Integrate and control 3rd party devices such as pumps, balances and pH sensors



Single or multi-user operation

- Control heating/cooling and stirring of each zone independently

Configure Mya 4 in the way that suits your chemistry

Choose the control option to meet your needs. Use our Process and Discovery set-ups as inspiration.

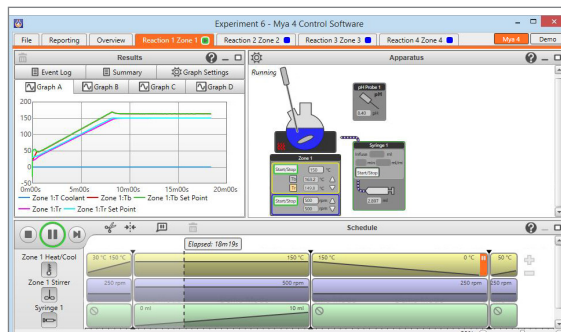
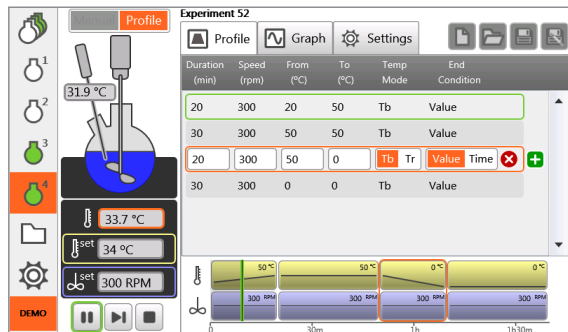
Touch-screen Control Pad

- Supplied as standard with Mya 4
- Intuitive and easy to use
- Compact footprint
- Set automated profiles or use manual control



PC Control Software - optional

- Integrate and control 3rd party devices
- Create complex experiments with any number of steps
- Report Wizard creates reports in rich text format or export results in CSV



Discovery Set-up

Choose the reflux head for integrated reflux cooling; combines well with magnetic stirring; ideal for use with round bottom flasks.

Applications

- Lead optimisation
- Single or parallel synthesis
- Reaction optimisation
- Reagent, catalyst & solvent screening
- Crystallisation studies

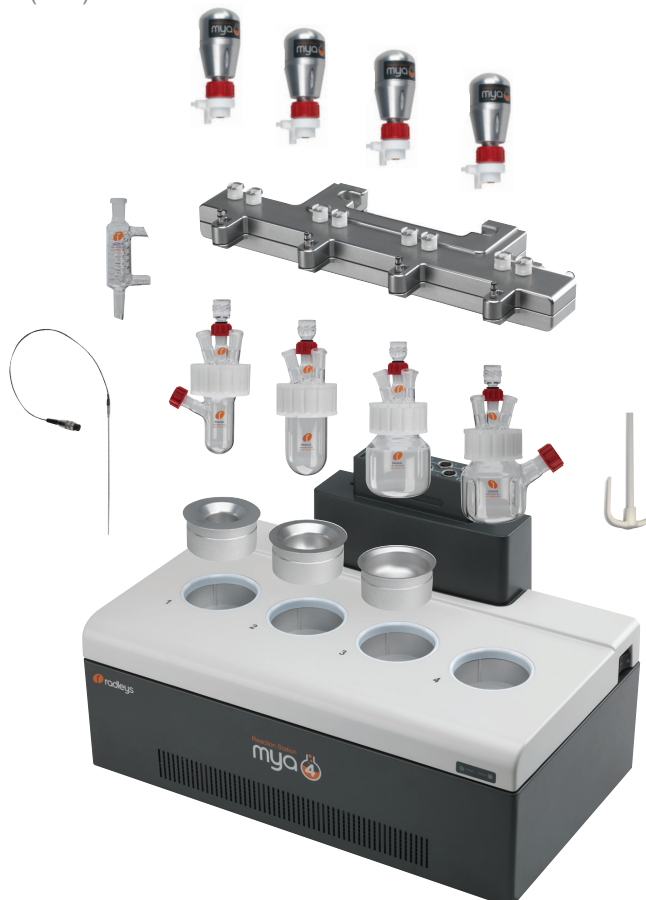


Process Set-up

Choose the manifold head for use with glass condensers, overhead stirrers and process vessels; ideal for mimicking jacketed reactors.

Applications

- Process development
- Design of Experiment (DoE)
- Polymorph screening
- Crystallisation studies
- Route scouting





Findenser™ - prevents flooding and saves water

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

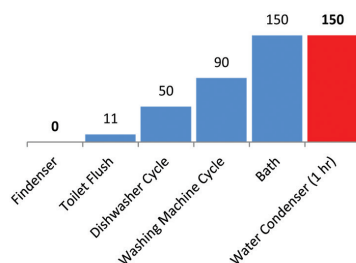
How does Findenser work?

- Findenser comprises 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'.

What are the benefits?

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

Average water consumption of common household appliances compared to a Findenser and water condenser



Choice of B14, B19, B24 and B29 joint sizes



B14



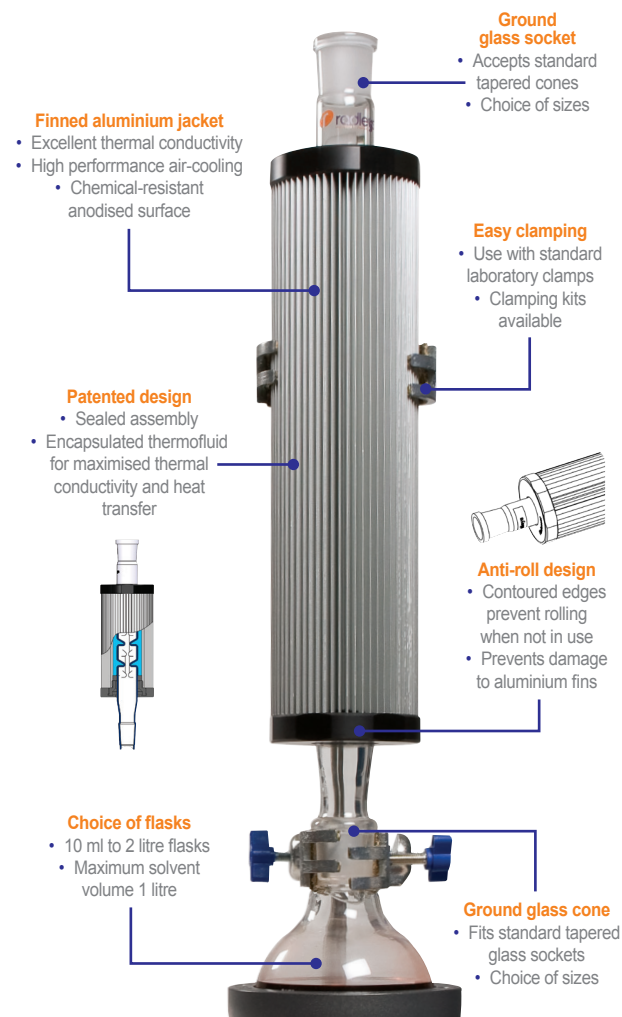
B19



B24



B29



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.

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.

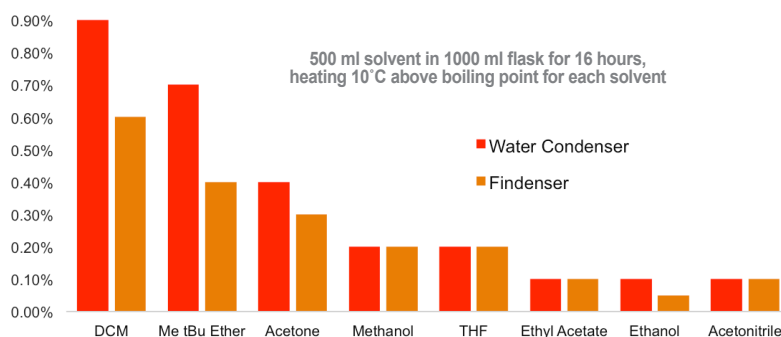
Findenser compared to an air condenser

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



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 10 ml to 5 litres

Features

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



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

Not all block 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



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.

Heat-On Multi-Well Block

- Accepts two 50 ml or 100 ml flasks, or one 150 ml flask

Two temperature probe holes

- Accept 3 mm ø probe

Lightweight design enables rapid heating

- Use up to 260 °C
- Uses 30% less energy
- Heats water 66% faster

Anodised finish

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

PTFE safety covers reduce the risk of burns

- Reduces surface temp. by up to 50%
- Reduces energy consumption by 15%
- Available for the most popular Heat-On sizes

Over 50 styles and sizes to choose from

- Accepts tubes and flasks
- 1 ml to 5 litres

Unique well design prevents flask cracking

- Unlike many other inferior blocks, Heat-On will not crack your flask when cooling

Optional lifting handles

- Quick-release mechanism for safe removal

Fluoropolymer coating

- Superb chemical resistance
- Easy to clean
- Speeds up heating times

Square hotplate adapter

- Allows Heat-On to sit on a square top plate up to 200 x 200 mm

Fits all leading hotplate brands

- Suitable for 145 mm ø top plates
- Optional adapter for 135 mm ø top plates

260°C



Cool-It™ Bowl - the virtually 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 and 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.

-78°C



Two part lid be removed with flask in situ



Small Cool-It bowl for flasks up to 400 ml



Large Cool-It bowl for flasks up to 2 litres

Cool-It accessories

- Clamps, stand, digital thermometer, scoop, protective gloves, apron and face shield

Lid improves cooling

- Keeps reaction cool for up to 20% longer
- Easily fitted once your flask is in place
 - Minimises ice formation on flask
 - Prevents spitting

Virtually unbreakable

- Manufactured from a robust, chemically-resistant HDPE
- High quality insulated foam core
- Unlike fragile glass dewars is virtually unbreakable

Protects your stirrer and minimises spills

- Cool-It minimises frost on the outer surfaces, protecting your stirrer from moisture ingress
 - Cool-It fits securely on the top plate minimising spills and the risk of the bowl being knocked off the top plate



Fits on all popular brands of stirring hotplate

- Suitable for use with top plates of 135 mm and 145 mm diameter



Easy pour spout and handle

- Non-drip spout and handle makes the disposal of solvents safer and easier
- Avoid spills for a safer working environment

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

Large and small bowl options

- Small for flasks up to 400 ml
- Large for flasks up to 2 litres



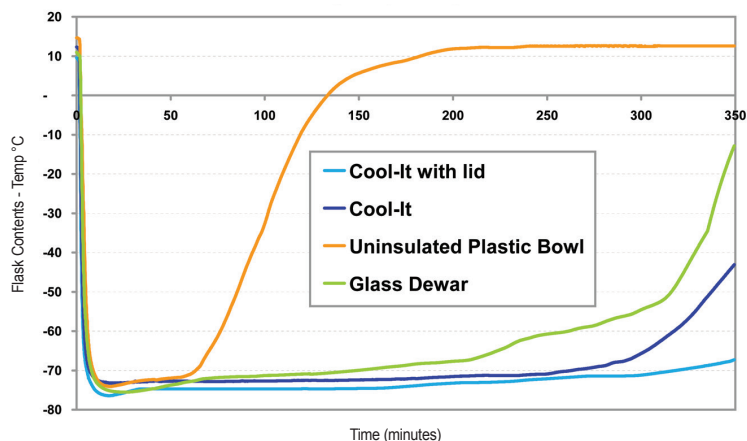
Cool-It accepts all shapes and sizes of round bottom and Florentine flask up to 2 litres



Easy pour design with spout and handle

Cool-It vs. Glass Dewar

Acetone and dry ice, 250 ml flask, 100 ml 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 and round bottom flasks.
- Set up vessels individually or in parallel.

260°C



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.

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

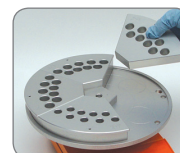
- Compatible with all popular brands of stirring hotplate
- Compatible with non-Radleys glassware

MonoBlocks or PolyBlocks

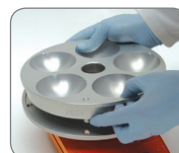
- Wide choice of block options
- From vials to 500 ml flasks

Choice of base plates

- For round or square hotplates
- Optional handles



PolyBlock



MonoBlock

Aluminium reducing inserts with PolyBlocks



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

Water and gas/vacuum distribution manifolds



Support rod



Base plate with optional handles accepts both MonoBlocks and PolyBlocks



Universal 3 and 5-way clamps

Inserts for flasks



Wide choice of PolyBlocks



MonoBlocks for 3 or 5 round bottom flasks





Carousel Standard



Carousel Tech



Carousel Connect

Carousel™ Stirring Hotplates

Choice of three models to suit your chemistry and budget, all offering improved safety, ease of use and faster heat-up times

Features include

- 3 year warranty
- 800 Watt heating power - heats faster
- Hotplate temperature range: 20 to 300 °C
- Pt1000 temperature sensor recommended for Tech and Connect
- Speed range: 30 to 1400 rpm
- Chemically resistant Kera-Disk top plate coating
- 135 mm top plate diameter
- Suitable for continuous unattended operation

300°C



Carousel Standard Stirring Hotplate

- Stirrer magnets provide superior coupling at high speeds/viscosities
- Stirring features a smooth ramp to set speed, prevents decoupling
- Safety circuit switches off heating if the set temp. is exceeded by 25 °C and additional hotplate cut-out by two independent temperature sensors

Includes
3 YEAR
warranty

Carousel Tech Stirring Hotplate

All Carousel Standard features, plus:

- **New** Residual heat indicator helps prevent accidental burns
- Digital display of temperature and speed with both set and actual values
- Residual heat indicator provides a clear warning if top plate surface > 50 °C, minimising accidents
- External sensor control; if Pt1000 is not immersed in the medium, heating is switched off.
- Optional Pt1000 temp. sensor with stainless steel or glass coated probe

Carousel Connect Stirring Hotplate

All Carousel Tech features, plus:

- **New** RS232 interface for optional PC control
- Speed range: 30 to 1400 rpm with superior accuracy: ±1%
- Optional Pt1000 temperature sensor offers improved temperature accuracy of ± 0.2 K accuracy
- Independent safety circuit switches off heating at an operator pre-determined value



Stirring Hotplate Specifications

	Carousel Standard	Carousel Tech	Carousel Connect
Speed range (rpm)	100 to 1400	100 to 1400	10 to 1400
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 to 300	20 to 300	20 to 300
Resolution of temperature setting (K)	± 5	± 1	± 1
External temperature sensor	Pt1000	Pt1000	Pt1000
Temperature accuracy with external temp. sensor (K)	± 1	± 1	± 1
Temperature accuracy hotplate (K)	± 5	± 5	± 5
Safety circuit hotplate (°C)	25 °C over hotplate temperature	25 °C over hotplate temperature	25 °C over hotplate temperature
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)
Dimension (W x L x D) (mm)	173 x 277 x 94	173 x 277 x 94	173 x 277 x 94
Supply voltage	230v / 50 Hz or 115v / 60 Hz	230v / 50 Hz or 115v / 60 Hz	230v / 50 Hz or 115v / 60 Hz

Hei-Torque™ Overhead Stirrers - *for powerful stirring*

The powerful Hei-Torque range can accomplish the most demanding mixing tasks whilst providing the highest safety combined with a unique user interface

Features

- Powerful stirring from 10 to 2000 rpm.
- Available with basic (Value) or advanced (Precision) features and a choice of up to 100, 200 or 400 Ncm of torque
- Intuitive touch panel for easy operation including safe start and stop via a slide touch panel to avoid accidental start-up.
- Sealed housing complies with IP 54 high protection from aggressive liquids and vapours.
- Guaranteed long life and maintenance-free, designed for 24-hour operation.
- Newest motor generation for maximum power at minimum noise level – below 50 db.
- Reduce process times with VISCO JET® impellers for mixing gels and other challenging media with ease.
- **New** features for advanced (Precision) range: set speed limit, adjustable acceleration and option to set a torque limit.
- **New** unique Quick-chuck for immediate and convenient ‘one-hand’ impellor changes, without tools.

Accessories

- Range of paddle designs available in stainless steel, PTFE and POM plastic.
- Range of fixed and telescopic stands.

Hei-Torque Value Specifications

	Hei-Torque Value 100	Hei-Torque Value 200	Hei-Torque Value 400
Power rating, motor input/output (W)	90/50	120/80	150/90
Number of gears	1	1	2
Speed range (rpm)	10 to 2000	10 to 2000	10 to 400 and 200 to 2000
Speed indicator	digital monochrom 2.4"	digital monochrom 2.4"	digital monochrom 2.4"
Speed control	electronic	electronic	electronic
Torque, maximum (Ncm)	100	200	400
Torque indicator	symbol	symbol	symbol
Overheat protection	automatic cut-out	automatic cut-out	automatic cut-out
Viscosity, max. (mPa·s)	60,000	100,000	250,000
Stiring cap. (H ₂ O) max. (L)	50	50	100
Shaft diameter, max. (mm)	2.5 - 10.5	2.5 - 10.5	2.5 - 10.5
Dimensions (W x H x D) (mm)	86 x 350 x 247	86 x 350 x 247	93 x 350 x 247
Weight (kg)	4.4	5.1	5.3

Hei-Torque Precision Specifications

	Hei-Torque Precision 100	Hei-Torque Precision 200	Hei-Torque Precision 400
Power rating, motor input/output (W)	90/50	120/80	150/90
Number of gears	1	1	2
Speed range (rpm)	10 to 2000	10 to 2000	10 to 400 and 200 to 2000
Speed indicator	digital colour 3.2"	digital colour 3.2"	digital colour 3.2"
Speed control	electronic	electronic	electronic
Set speed limit	yes	yes	yes
Adjustable acceleration	yes	yes	yes
Torque, max (Ncm)	100	200	400
Torque indicator	precise value	precise value	precise value
Set torque limit	yes	yes	yes
Overheat protection	automatic cut-out	automatic cut-out	automatic cut-out
Viscosity, max. (mPa·s)	60,000	100,000	250,000
Stiring cap. (H ₂ O) max. (L)	50	50	100
Analogue/digital interface	USB & RS232	USB & RS232	USB & RS232
Counter/Timer	yes	yes	yes
Shaft diameter, max. (mm)	2.5 - 10.5	2.5 - 10.5	2.5 - 10.5
Dimensions (W x H x D) (mm)	86 x 350 x 247	86 x 350 x 247	93 x 350 x 247
Weight (kg)	4.4	5.1	5.3



Includes
3 YEAR
warranty



Hei-TORQUE Value 100 or 200



Hei-TORQUE Value 400



Hei-TORQUE Precision 100 or 200



Hei-TORQUE Precision 400



Telescopic Stand



Boss Clamp



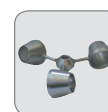
VISCO JET® Crack S/S



VISCO JET® 60 mm Ø S/S



VISCO JET® 80 mm Ø S/S



VISCO JET® 120 mm Ø S/S



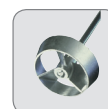
Square Blade Impeller S/S



Collapsible Blade Impeller S/S



Pitched Blade Impeller S/S



Ringed Propeller S/S



Radial Flow Impeller S/S



Crossed Blade Impeller S/S



Anchor PTFE



Turbine PTFE



Retreat Curve PTFE

Simple and convenient, the Carousel Work-Up Station will reduce post-synthesis bottlenecks.



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.



Features

- Accepts up to 12 glass tubes with a reaction volume of 1 ml to 20 ml.
- Powerful, even stirring - fits onto 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 with optional digital control and Pt1000 temperature sensor.

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.

Chemical-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 up to 12 tubes with reaction volume of 5 to 20 ml (1 ml 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 ensure 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).

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, powerful stirring and digital control.

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

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

Control and log your chemistry



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.

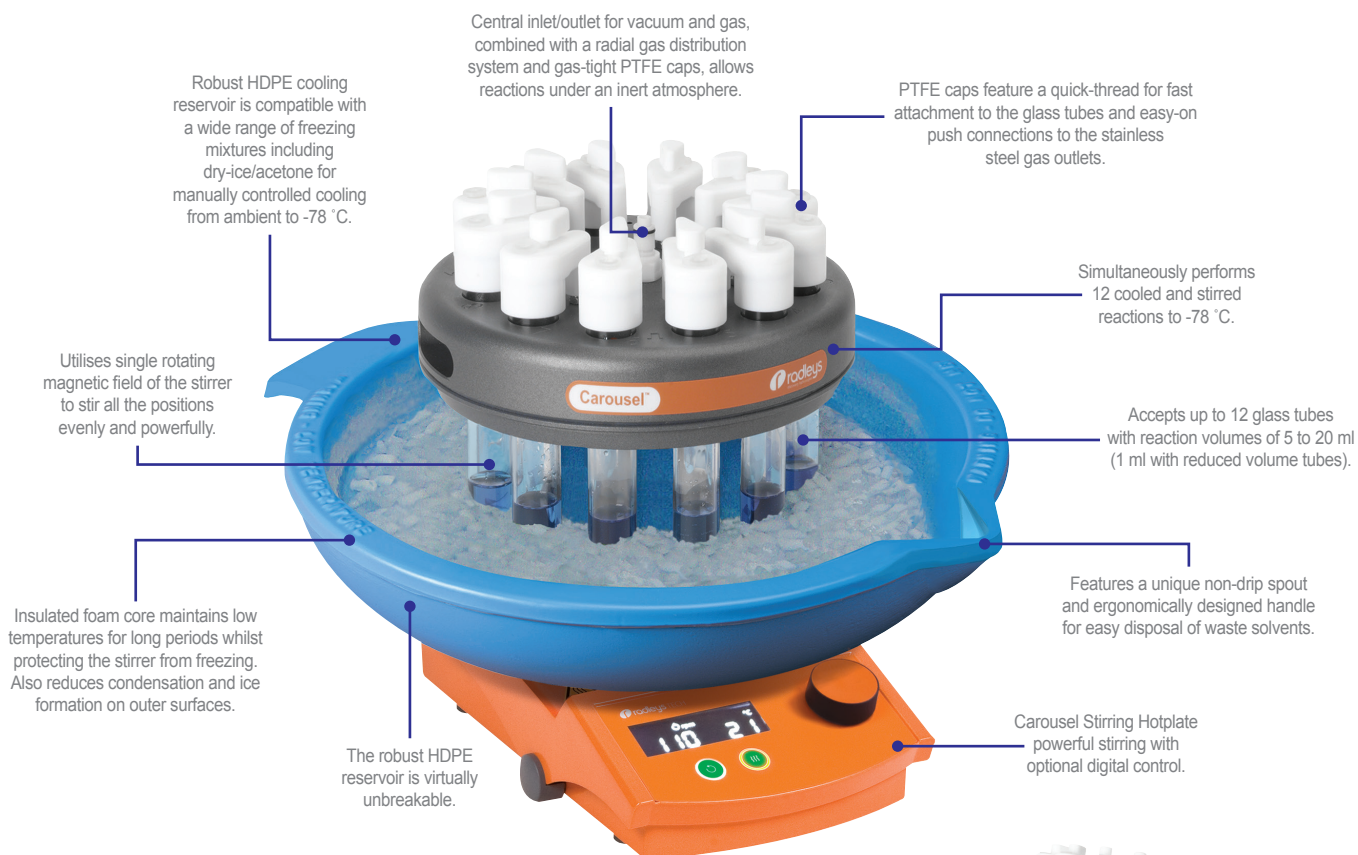
-78°C



Upgrade your Carousel to perform cooled chemistry



Transfer the reflux/inerting head to the cooled reservoir



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.

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

See page 16



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: 5 ml, 10 ml, 25 ml, 50 ml, 100 ml, 170 ml and 250 ml sizes.

Features

- Powerful, even stirring - fits onto 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.
- 100 ml and 250 ml azeotropic (Dean and Stark) flask option.
- PTFE caps feature a quick-thread for fast attachment to flasks.

180°C



A wide range of accessories including liquid additions funnels, powder funnels and rotary evaporator adapters

Heated directly by the stirring hotplate with optional digital control and Pt1000 temperature sensor

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 hood

Chemical-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: 5 ml, 10 ml, 25 ml, 50 ml, 100 ml, 170 ml and 250 ml round bottom flasks, as well as vessels with one or two sidearms

PTFE heat protection ring protects user from contact with hot base

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

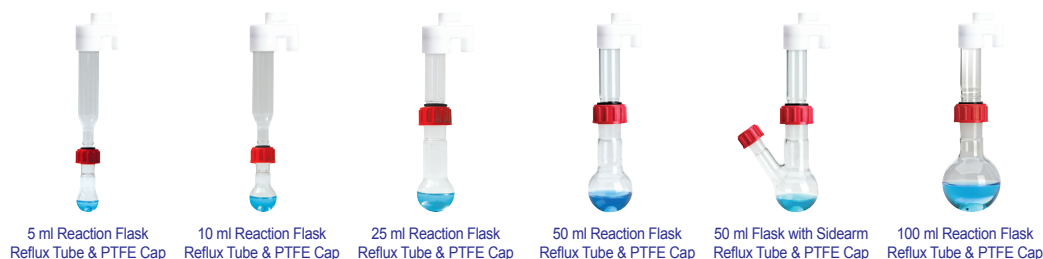
Control and log your chemistry



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

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

Aluminium inserts for 5 ml, 10 ml, 25 ml, 50 ml, 100 ml and 170 ml flasks



5 ml Reaction Flask
Reflux Tube & PTFE Cap

10 ml Reaction Flask
Reflux Tube & PTFE Cap

25 ml Reaction Flask
Reflux Tube & PTFE Cap

50 ml Reaction Flask
Reflux Tube & PTFE Cap

50 ml Flask with Sidearm
Reflux Tube & PTFE Cap

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

Features

- Simultaneously perform 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 fume hood.



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



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

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

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



Fits on a standard Carousel Stirring Hotplate

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

Carousel Stirring Hotplate powerful stirring with optional digital control

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

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

Chemical-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

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

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



100 ml Flask with Sidearm Reflux Tube and PTFE Cap



170 ml Reaction Flask Reflux Tube and PTFE Cap



250 ml Reaction Flask Reflux Tube and PTFE Cap



250 ml Wide Neck Vessel



250 ml Flask with 2 Sidearms with Dropping Funnel



250 ml Reaction Flask with Dropping Funnel



250 ml Azeotropic Reaction Flask with Dropping Funnel



Tornado with 250 ml wide neck flasks

Tornado™ Overhead Stirring System

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

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

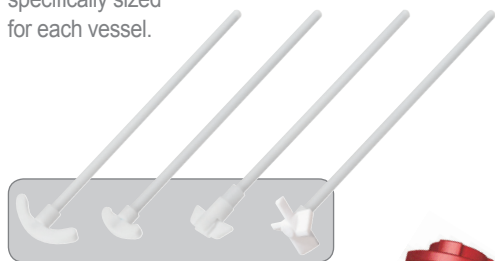
Features

- Integrates with Carousel 6 Plus to provide heated and stirred reactions.
- Rapid heating to 180 °C with water-cooled reflux head.
- Perform reactions under an inert atmosphere.
- Accepts 50 ml, 100 ml and 250 ml round bottom flasks.
- Uses a single overhead stirrer - save space and money compared to 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 1000 rpm in low viscosity.
- Max. viscosity 10000 mPas at 500 rpm.



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 disturbing the creation of a vortex.

Azeotropic vessels

250 ml azeotropic (Dean and Stark) flask option.

250 ml azeotropic vessel with dropping funnel and centrifugal PTFE stirrer



Compatible with all leading brands of overhead stirrer

Heated directly by the stirring hotplate with optional digital control and Pt1000 temperature sensor

Tool-free pinch-grip mechanism and sealed stirrer shaft system allows easy stirrer shaft insertion and operation under an inert atmosphere

Integral polycarbonate safety guard

Provides up to six heated (max +180 °C) and stirred reaction positions

Universal support stand gives added stability



Uses a single overhead stirrer to agitate up to six 250 ml flasks

Easy to operate and set up with minimal training time

2-speed drive (1:1 and 2:1) allows lower rated stirrers to be used for higher viscosity liquids

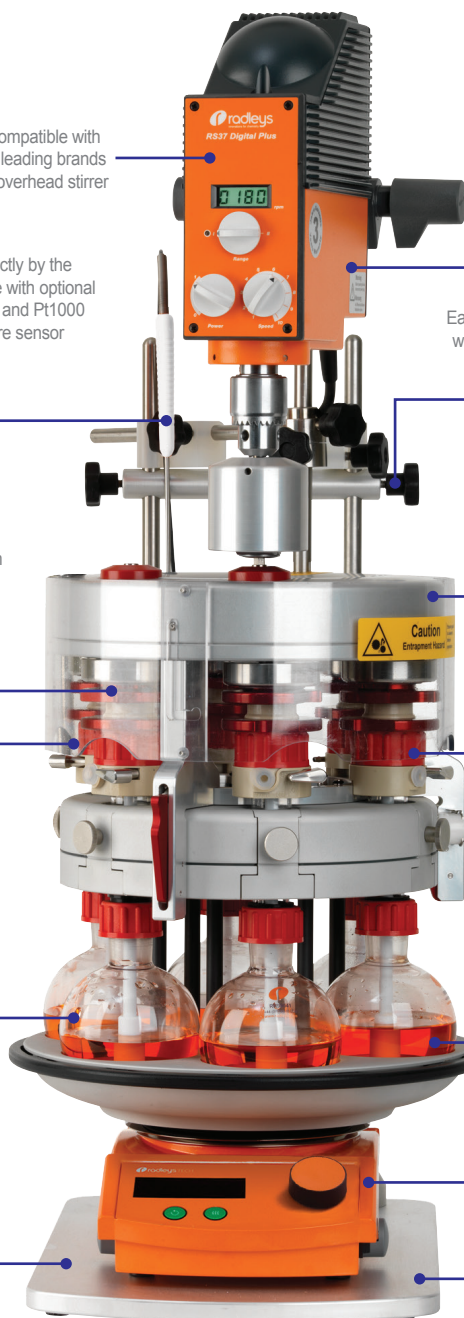


Individual vessels can be removed easily

Accepts 50 ml, 100 ml and 250 ml round bottom flasks (sidearms and baffled flasks available)

Fits on a standard Carousel Stirring Hotplate

Integrates with existing Carousel 6 Plus without increasing footprint



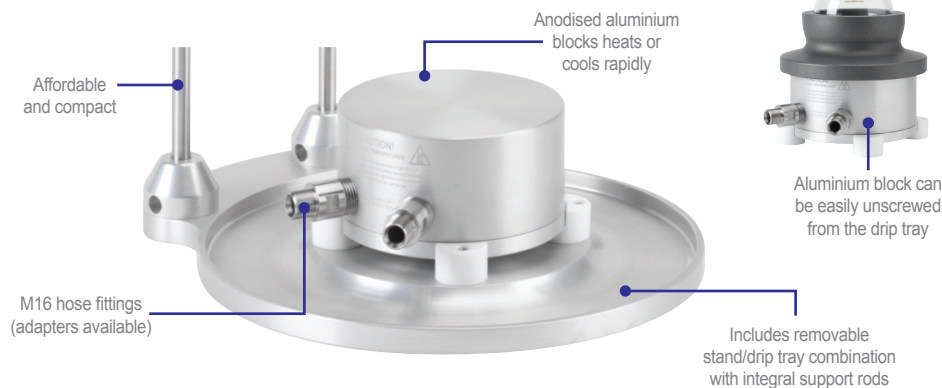
Breeze™ Heating/Cooling Work Station

When 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.

Features

- Thermofluid -85 °C to +235 °C providing a solution temperature of -30 °C to +165 °C.
- 135 mm 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 250 ml 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

Designed as an add-on module for the Carousel 6 Plus and Tornado combination, Storm creates 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.
- 135 mm 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 Plus, Tornado, overhead stirrer and PTFE insulating plate



Carousel 6 Plus 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. See page 20.



Designed for the synthesis of small compound libraries and drug discovery

Control and log your chemistry



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

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

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

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

Fits on a standard Carousel Stirring Hotplate



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



GreenHouse Plus Parallel Synthesiser™

The GreenHouse Plus provides 24 heated and stirred glass reactions with volumes from 0.5 ml to 7 ml. 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 microtiter 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

Can be converted into GreenHouse Blowdown Evaporator

Heated directly by the stirring hotplate with optional digital control and Pt1000 temperature sensor.

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 hood

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

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

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

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

GreenHouse Blowdown Evaporator™

Parallel evaporation of samples in 8 or 24 vials, tubes and microtiter 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.

Control and log your chemistry



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

Can be converted into GreenHouse Plus Parallel Synthesiser

Typical Evaporation Times

Solvent	Samples	Volume	Vessel	Evap. Time
Methanol	24	2 ml	3.5 ml vial	20 mins
Methanol	8	5 ml	20 ml vial	22 mins
Acetonitrile	24	2 ml	3.5 ml vial	20 mins
Acetonitrile	24	2 ml	7 ml tube	35 mins
Water	8	5 ml	20 ml vial	157 mins
DMF	24	2 ml	3.5 ml vial	138 mins
DMF	24	2 ml	7 ml vial	145 mins

40°C Base Temperature. Flowrate 10 l/min (8 well), 20 l/min (24 well)

Compatible with:

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



Precise heat control and the absence of a vacuum protects your sample and avoids bumping.

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

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

Removable head features quick-release handles for easy exchange of Blowdown pin plates.

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 7 ml tubes

Insert the adapter into the GreenHouse base to accept vial racks or titre plates...

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



Insert the adapter 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

24 Position Parallel Work-Up

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

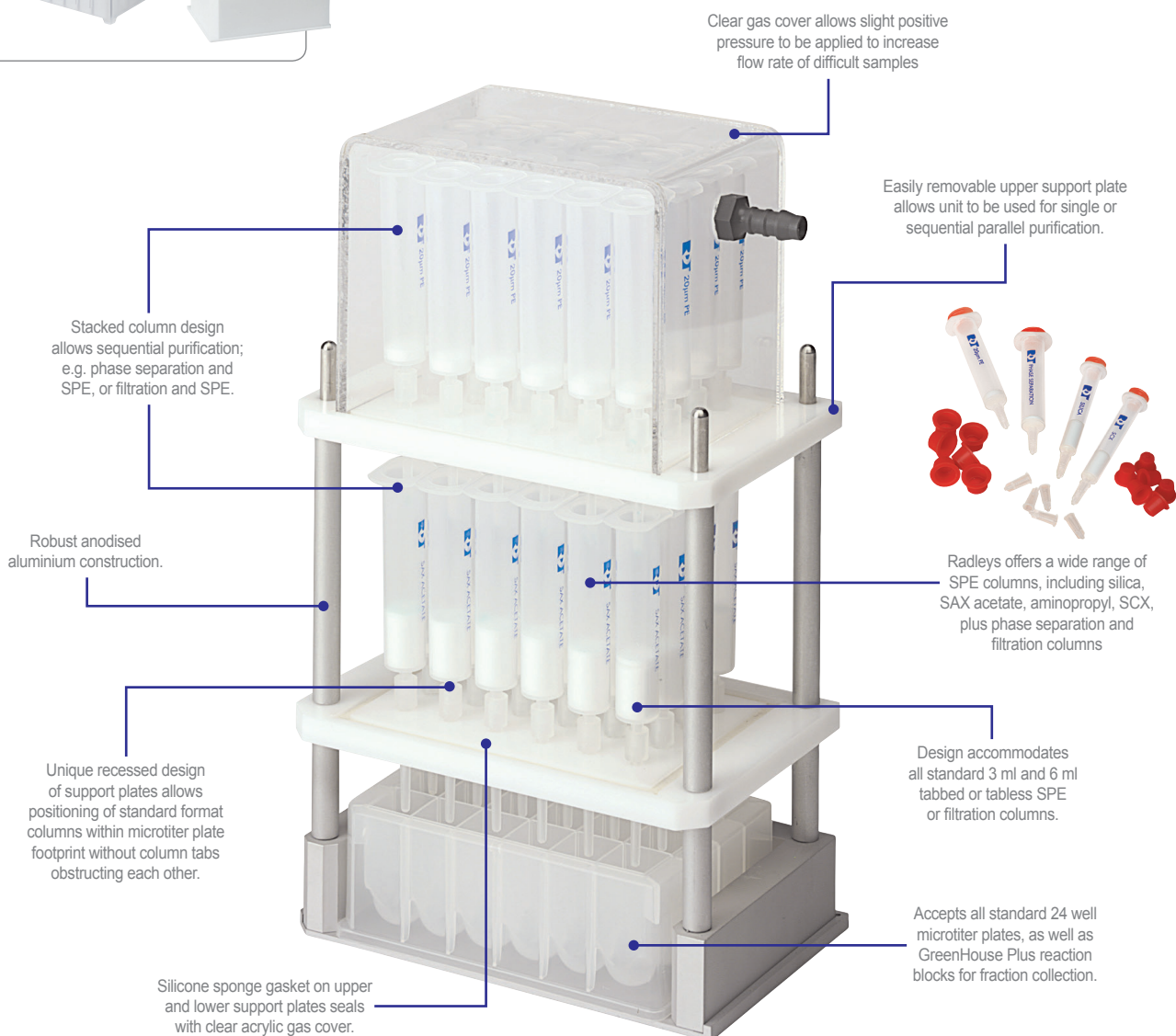


GreenHouse Work-Up Station™

Rapid, sequential, parallel purification in a 24 well, microtiter plate footprint using standard 3 ml or 6 ml 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 3 ml and 6 ml tabbed or tabless SPE or filtration columns.
- Accepts all standard 24 well microtiter 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.



Carousel Work-Up Station™

Easy-to-use, the Carousel Work-Up Station reduces post-synthesis bottlenecks

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 70 ml 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.

Carousel 12 Plus 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 70 ml columns including 20 µm 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. Minimises cleaning time and consumable costs

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

Accepts 12 x Carousel reaction tubes or standard 1 inch boiling tubes

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



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

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

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

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 15 ml, 25 ml, 70 ml and 150 ml columns plus the Whatman AutoCup



Jacketed Reaction System Quick Guide

				
Jacketed Reaction Systems		Reactor-Ready	Reactor-Ready Duo	Reactor-Ready Pilot
Custom/Bespoke Reaction Systems	Reaction System Kits	Lab Reactor	Dual Lab Reactor	Pilot Scale Lab Reactor
Custom designed reaction systems and frameworks	Traditional reactor kits with benchtop or floor standing frameworks	Innovative, reactor work station. Rapid vessel exchange	Innovative, two vessel reactor work station. Rapid vessel exchange	Innovative pilot scale reactor work station. Rapid vessel exchange.
100 ml to 30 litre	100 ml to 20 litre	100 ml to 5 litre	100 ml to 5 litre	5 litre to 20 litre
-70 °C to +200 °C	-70 °C to +200 °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 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	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	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	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 and PTFE	Can be customised to integrate other accessories and software control	Wide range of standard or custom vessels, accessories and software control	Wide range of standard or custom vessels, accessories and software control	Wide range of standard or custom vessels, accessories and software control

AVA Lab Control Software - take control of your chemistry

	Control and log your reaction system - improved productivity and safety	<p>Control and log your chemistry</p> 
	Run unattended experiments safely. Reduce manual errors	
	Four software levels to suit your application and budget	
	Data Hubs can be used to connect up to 16 x RS232 devices	

Custom/Bespoke Reaction Systems - 100 ml to 30 litres

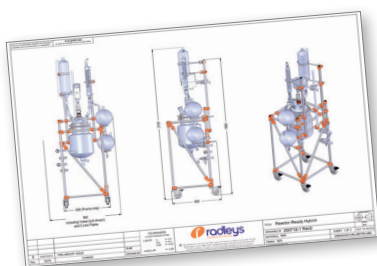
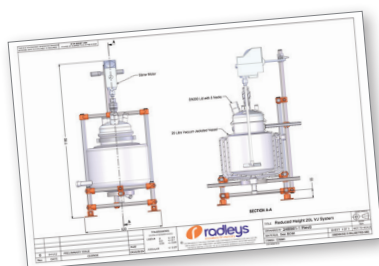
Jacketed reaction systems designed to meet your specifications

Radleys are experts in the design and manufacture of exceptional quality scientific glassware. We have a long history (over 50 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.

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.

In-house
design and
manufacture of
vessels



In-house design and manufacture of custom glass reaction vessels and frameworks



An installation of six 30 litre jacketed reaction systems in Shanghai, China

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

Vessels

- Single or vacuum jacketed
- Jacketed vessels to 30 litres
- Vacuum jacketed vessels to 10 litres
- Tall, squat or process vessel geometries
- Cylindrical or spherical vessels
- Split jackets and optical windows
- Conical, dish or hemispherical vessel bottoms
- Stainless steel, hastelloy or 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: electric or air-powered



A custom parallel system and framework, with control software installed in Germany



Control and log your reaction system with AVA Laboratory Control Software



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

Swap reaction vessels in minutes, not hours



Reactor-Ready is designed as a universal reactor work station, with a range of easily interchangeable vessels from 100 ml 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 fume hood space.

Features

- Rapid, tool-free vessel exchange with quick-release vessel clamp and hose couplings.
- Range of single and vacuum jacketed vessels from 100 ml to 5 litres.
- Process vessels to mimic larger scale plant or manufacturing reactors, with 1:1.25 ratio and dish-shaped bottom.
- 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.
- Jacket temperature range: -70 °C to +230 °C.
- Wide range of accessory glassware including condensers and dropping funnels etc.
- Optional software allows you to log and control stirrers, circulators, balances, pumps, temperature sensors and other devices.

Control and log your chemistry



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



Standard vessels

- 250 ml to 5 litres
- Vacuum jacketed option
- Glass accessories to match

Process vessels

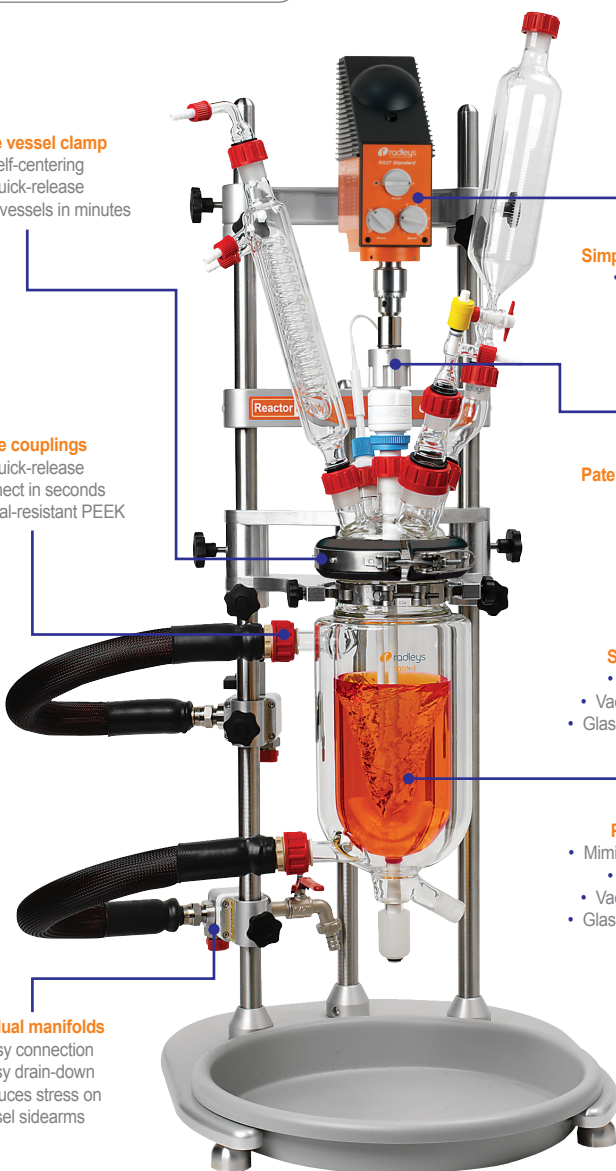
- Mimic plant scale geometry
- 100 ml to 5 litres
- Vacuum jacketed option
- Glass accessories to match



A choice of popular stirrer paddles

Individual manifolds

- Easy connection
- Easy drain-down
- Reduces stress on vessel sidearms



Reactor-Ready™ Duo Lab Reactor - 100 ml 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.

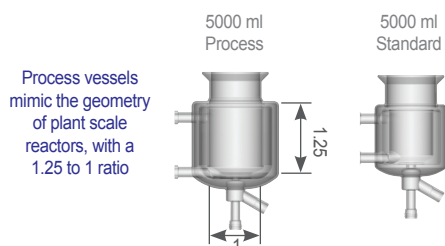
Features

- 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.

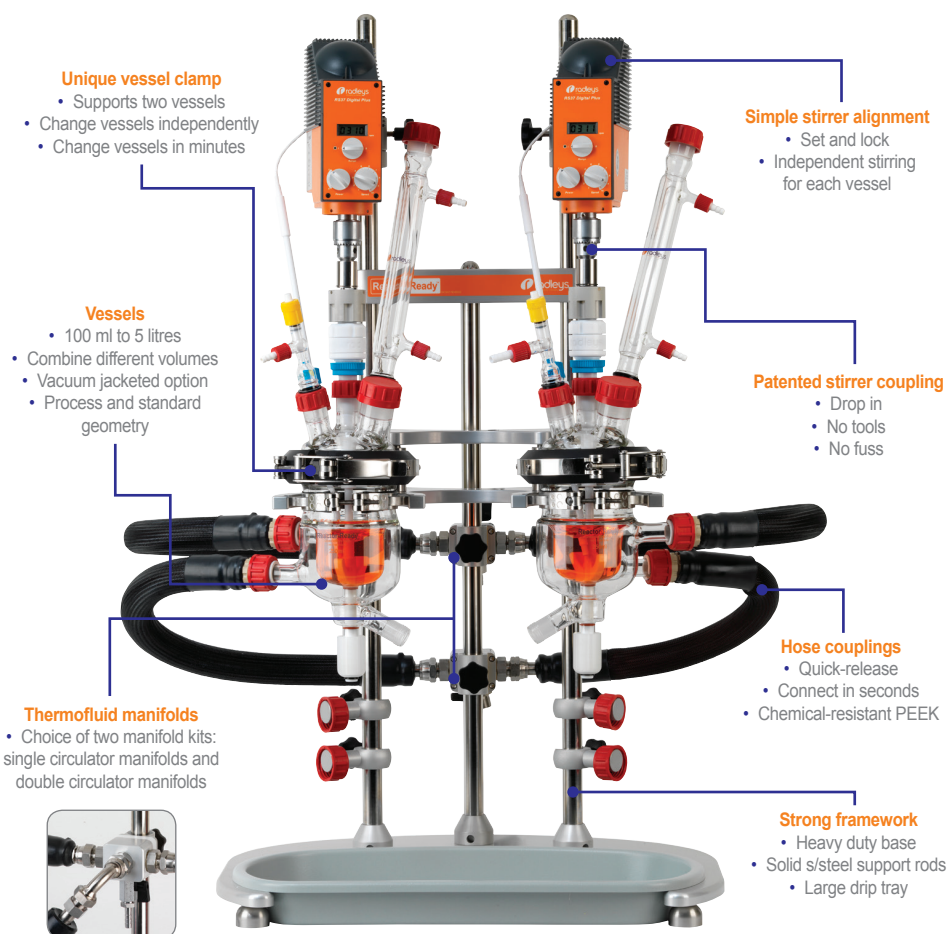


Applications

- 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 AVA software to control fluid transfer between vessels.



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



Unique vessel clamp

- Supports two vessels
- Change vessels independently
- Change vessels in minutes

Vessels

- 100 ml to 5 litres
- Combine different volumes
- Vacuum jacketed option
- Process and standard geometry

Thermofluid manifolds

- Choice of two manifold kits: single circulator manifolds and double circulator manifolds

Simple stirrer alignment

- Set and lock
- Independent stirring for each vessel

Patented stirrer coupling

- Drop in
- No tools
- No fuss

Hose couplings

- Quick-release
- Connect in seconds
- Chemical-resistant PEEK

Strong framework

- Heavy duty base
- Solid s/steel support rods
- Large drip tray

Supports two glass reaction vessels of different or similar volume from 100 ml to 5 litres



Similar vessel sizes with double circulator manifold kit



Different vessel sizes with double circulator manifold kit



Similar vessel sizes with single circulator manifold kit



Different vessel sizes with single circulator manifold kit

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 AVA Software and Data Hub.

Control
and log your
chemistry



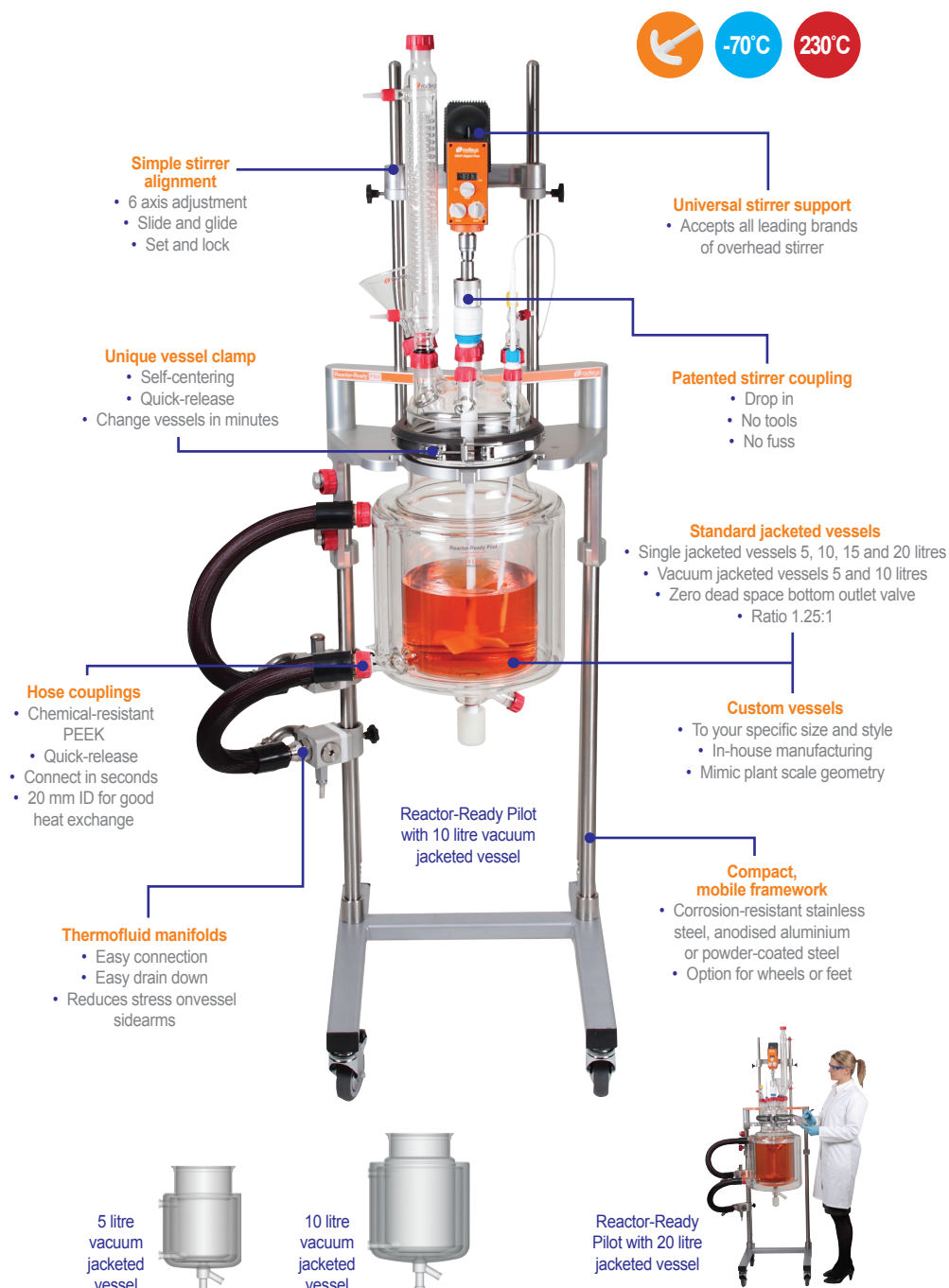
Reactor-Ready™ Pilot - 5 to 20 litres

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.
- Single jacketed vessels available in 5, 10, 15 and 20 litres.
- Vacuum jacketed vessels available in 5 and 10 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.
- Jacket temperature range: -70 °C to +230 °C.
- Innovative hose manifolds allow easy thermofluid drain down.



AVA™ Software - *take control of your chemistry*

AVA Level 4 controls multi-device jacketed reaction systems

- Unattended chemistry for improved productivity
- Automatically log your process data
- Improve safety and reduce manual errors
- Control any reactor



If you answer YES to any of the following:

Do you want to...

- ✓ Manage multiple devices easily during complex reactions?
- ✓ Have freedom from manual recording of experimental data?
- ✓ Safely run and monitor unattended reactions 24/7?
- ✓ Reduce manual errors or inconsistencies in your chemistry?
- ✓ Safely control exotherms?

Then AVA Software is what you need to take control of your chemistry

Control multi-device reactions

- Control up to 4 reaction systems with up to 16 devices on one screen
- Create complex experiments with any number of steps in series or in parallel
- Pre-program multi-step recipes, with the flexibility to make and track on-the-fly adjustments
- Interlink devices and set feedback/control loops, end-point conditions and safety limits

No more manual data logging or manual errors

- Automatically record reaction parameters and log what you do, as you do it
- Repeat experiments accurately for reproducible and consistent results
- Create reports in a few clicks or export data as a CSV file for further analysis
- Share results between users to improve research and collaboration

Safe unattended chemistry

- Automate cooling during exothermic events
- Link devices such as balances and pumps for controlled, unattended reagent addition
- Define safety overrides and cut-off conditions
- Configure audio and visual alarms

Download and try AVA software for FREE

Learn how AVA software works - try before you buy

- Simulate control of devices
- Set up apparatus and control experimental Schedules
- Share setups and Schedules with other AVA users
- Analyse results and create reports for real or simulated data
- Find out more about AVA Level 1-3 on our website

AVA Care Support

- Free support for 1st year
- Free priority email and telephone support
- Free set-up and application support
- Free software updates during support period, keeping software current.

Data Hub

Integrates devices via an RS232 serial interface



Download
Free Demo
www.radleys.com

Level 4



Control and log reaction systems with multiple devices



Control a variety of devices

AVA software includes a library of pre-configured driver files allowing easy integration with a wide range of 3rd party devices.

Radleys also provide a 'New Driver Configuration Service' if required.



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