

# Reactor-Ready™ Lab Reactors

Patent Pending

Innovative, patented,  
low cost, reaction work  
stations for glass  
vessels from  
100ml to 5 litres



-70°C

230°C



*Reactor-Ready Duo*

# Reactor-Ready Lab Reactor

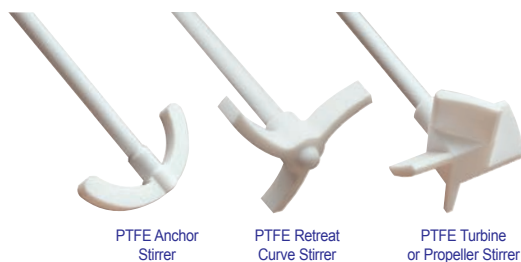
Replace multiple reaction set-ups with a single universal system that accepts vessels from 100ml to 5 litres



A single reaction system that accepts a range of different vessel sizes



A choice of popular stirrer paddles



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



## Unique Vessel Clamp

- self centering
- quick release
- change vessels in minutes

## Hose Couplings

- quick release
- connect in seconds
- chemical resistant PEEK

## Individual Manifolds

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





# Change to Reactor-Ready because...

...it saves space, time, money and improves your chemistry



## Simple Stirrer Alignment

- slide and glide
- set and lock

## Patented Stirrer Coupling

- drop in
- no tools
- no fuss

## Standard Vessels

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

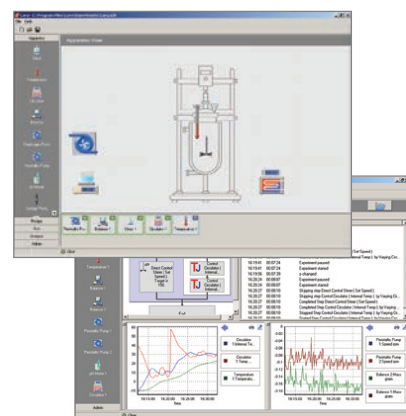
## Process Vessels

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

Reactor-Ready Duo accepts two vessels and allows reactions in parallel or series



Optional software allows you to log & control stirrers, circulators, balances, pumps, temperature sensors & other devices



Compatible with Radleys and other leading brands of overhead stirrer



Compatible with all leading brands of circulator and thermoregulator

# Reactor-Ready

## Swap reaction vessels in minutes, NOT hours

Reactor-Ready is designed as a universal reactor work station that can be used for different vessel sizes and different experiments. Reactor-Ready can easily and quickly be configured to suit the chemistry and scale you need for each project.

The beauty of Reactor-Ready is that this one reactor work station can replace many, saving you money and fumehood space.

### Features include

- Rapid vessel exchange with quick-release vessel clamp and hose couplings.
- Range of single and double jacketed vessels from 100ml to 5 litres.
- New range of 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 strength and stability.
- Self aligning stirrer coupling engages without the need for tools.
- Temperature range: -70°C to +230°C.
- Innovative hose manifolds allow easy thermofluid drain down.
- Wide range of accessory glassware including condensers, dropping funnels etc.
- Optional software allows you to log & control stirrers, circulators, balances, pumps, temperature sensors & other devices.

### Patented vessel clamp allows rapid vessel exchange without tools

- Unique clamp design allows vessel to be supported and clamped by a single operator in less than a minute.
- Use the same clamp to hold all vessel sizes; plus the vessels remain supported even when the clamp is unlocked.



### Vessel Support Collar aids vessel loading

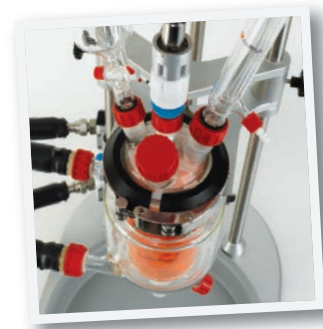
- Reactor-Ready uses an innovative support collar fitted to the neck of each vessel, which allows the vessels to be swapped in and out of the Reactor-Ready core like a cartridge.
- The stainless steel collar locks securely into the support plate on the framework and allows the vessel to remain supported, even when not clamped.
- Vessel exchange is tool free and can easily be undertaken by one person.

### Unique Self aligning Stirrer Coupling saves time when changing Vessels

- Patented drop-in stirrer coupling engages easily without the need for tools.
- Simply lower the stirrer coupling to engage with the stirrer guide below.
- The stainless steel stirrer coupling will fit in any standard stirrer chuck.
- The non-slip design ensures powerful stirring up to 500rpm, or 800rpm for short periods (subject to motor selected).



Stainless Steel Vessel  
Support Collar

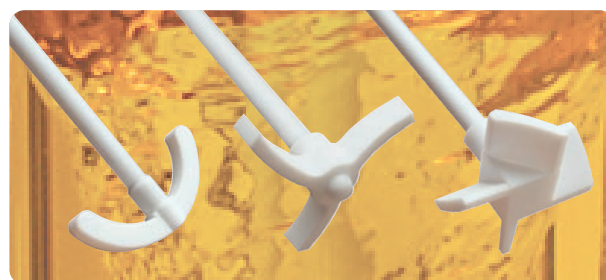


### Choice of PTFE stirring shafts

- Reactor-Ready is offered with a choice of PTFE Stirring Shafts: Anchor, Retreat Curve and Turbine or Propeller styles.
- PTFE Anchor Stirring Shaft is included with all standard reaction vessel kits.
- PTFE Turbine Stirring Shaft is included with all process reaction vessel kits.

### I-beam Support allows the Stirring Motor to be positioned with ease

- I-beam allows the stirrer drive to be raised or lowered without needing to remount the stirrer.
- Adjustable safety stop collars located below the I-beam allow the user to lower the stirrer motor to a set position for ease of operation and safety.
- Reactor-Ready accepts all leading brands of motor or air-powered overhead stirrer with support rods up to 16mm in diameter.



PTFE Anchor  
Stirrer

PTFE Retreat  
Curve Stirrer

PTFE Turbine  
or Propeller Stirrer

### Whip-free stirrer guide

- The Reactor-Ready's PTFE stirrer guide screws directly on to the glass lid and features a unique extended support which provides whip-free agitation even at high speeds.
- The stirrer guide is chemically inert, gas tight and suitable for work under vacuum.



PTFE Stirrer  
Guide provides  
whip-free agitation

### Quick Release PEEK Hose Couplings

- Operates over the temperature range -70°C to +230°C.
- Quick release, screwthread design allows rapid exchange of vessels without the use of tools.
- Simply tighten by hand for a leak tight seal.
- PEEK with Viton O-rings ensures all wetted parts are chemically resistant.
- Lightweight, metal free design prevents chipping and minimises strain on the glass fitting.
- All hoses have a 12mm ID, maximising thermofluid flow and heating/cooling performance.
- Low thermal conductivity of PEEK reduces frosting when cooling.



### Hose Manifolds allow easy Thermofluid drain down

- The inlet and outlet hoses from the Reactor-Ready vessel connect to manifolds attached to the support rod. These manifolds serve two important functions:
  1. Supports the hose running from the vessel, thereby eliminating stress on the glass sidearm.
  2. Allows thermofluid drain down which provides a quick and clean method of removing the thermofluid from the vessel jacket when changing vessels.
- By opening the venting valve on the (upper) outlet manifold, thermofluid drains from the vessel back to the thermoregulator under gravity.
- Opening the drain tap on the (lower) inlet manifold allows drainage to an external reservoir.



## Case Study: Accelerating process optimisation in a busy chemical development lab

Researchers at a leading US pharmaceutical company invested in Reactor-Ready for use in their chemical development lab. The process R&D group, specialising in small molecule research, are using Reactor-Ready for optimising new or existing chemistry, identifying and eliminating impurities, and screening process variables for transfer to kilo-labs, pilot plant and manufacturing sites.

Commenting on their existing methods the Lead Scientist said, "We use round bottom flasks, but temperature control via mantles or oil baths is poor. Alternatively, when we use traditional jacketed reactor vessels, we need a different set up for every scale change. Even changing a reactor of the same size takes ages."

"So I liked Reactor-Ready the minute I saw how easy it was to change reactors. Reactor-Ready does it all. I get one stand which fits all sizes up to 5 litres. I get overhead stirring on all scales. I get vacuum jacketed vessels, which provide excellent temperature control with minimum heat loss, which is a real advantage at low temperatures, and I get the ability to rapidly change out my reactors."

"The first time I changed vessels, it took about 5 minutes but now I can change in less than 2 minutes. That includes removing and attaching the heating fluid hoses. Occasionally I lose a drop or two of heat transfer fluid but most times I lose none. The thing I like about the system is the control and speed. I get better control of my reactions and I can vary my work or scale immediately".



## How to order Reactor-Ready...

1. Select the Reactor-Ready Core.



2. Choose the Vessel Kit or Kits you require by selecting the vessel volume and style.



3. Select the overhead stirrer you need.



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



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



## Reactor-Ready in detail

It is the attention to detail and wealth of innovative features that makes Reactor-Ready so much better



Precision ground lid and vessel flanges combine with PTFE collar and FEP encapsulated O-ring to offer superior sealing performance.

Vessel clamp support allows easy vertical repositioning of the vessel whilst maintaining the stirrer coupling alignment.



Venting stopcock on the outlet manifold allows quick and easy draining of the thermofluid during vessel exchange.

Vessel-to-manifold hoses are supported by the manifolds and frame, eliminating stress on the vessel.

Quick release PEEK coupling allows rapid exchange of vessels without the use of tools. Operates over the temperature range -60°C to +190°C.

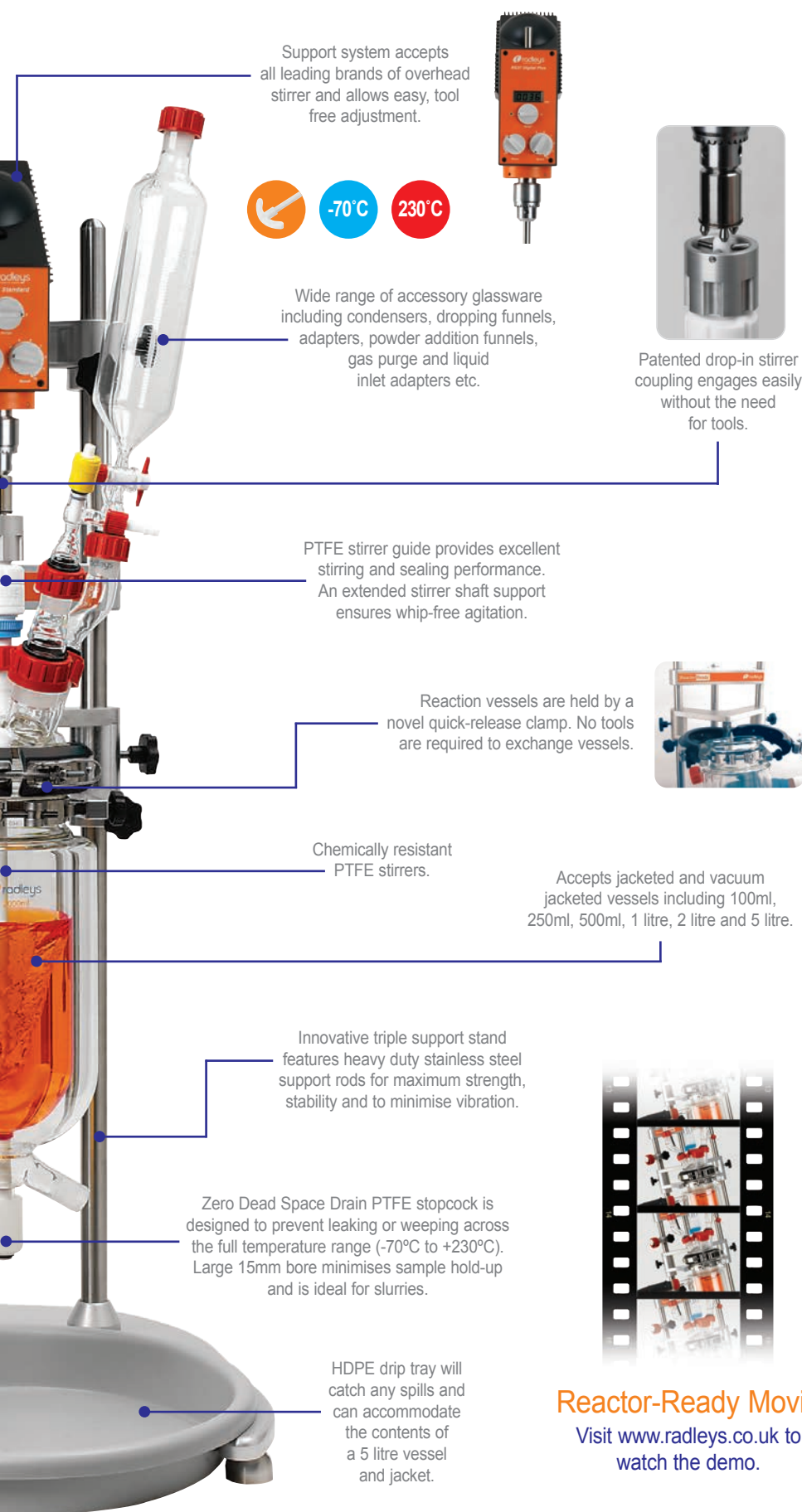


Thermofluid may be drained back to the thermoregulator or decanted via a fluid drain tap on the inlet manifold.

Heavy duty base plate with levelling feet ensures that the Reactor-Ready support stand is secure and stable.

Stirrer support I-beam allows the stirrer drive to be easily raised and lowered with ease.





## Reactor-Ready Core System includes

- Stand with Base, Support Rods, Bosses and all Clamps
- Glass Reaction Vessel Lid
- Vessel FEP O-ring seal and PTFE Collar
- HDPE Drip Tray
- Vessel to Manifold Insulated Hoses with Quick-Release Connections
- Lower Inlet Manifold + Drain
- Upper Outlet Manifold + Vent
- PTFE Stirrer Guide and Coupling
- Stainless steel Stirrer Drive Coupling
- Two stainless steel Vessel Support Collars
- Locking Rod for Support Rod Bosses



## Reaction Vessel Kits make ordering vessels simple and more cost effective

These cost effective Vessel Kits include the vessel and accessories you need to get started. The Pt100 probe and anchor stirrer included in each kit are matched to the vessel size. Each Vessel Kit includes:

- Reaction Vessel with PTFE Stopcock
- Sidearm Couplings
- Pt100 PTFE Temperature Probe with Lemo Connector
- PTFE Temperature Probe Adapter
- PTFE Anchor Stirrer



## Reactor-Ready Movie

Visit [www.radleys.co.uk](http://www.radleys.co.uk) to watch the demo.

# Reactor-Ready Duo

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

Reactor-Ready Duo shares the same unique features as Reactor-Ready, except that it supports two separate jacketed glass reaction vessels. The system can be configured to operate with a single thermoregulator controlling the temperature of both vessels simultaneously; or with two thermoregulators controlling the temperature of each vessel independently.



## Unique Vessel Clamp

- supports two vessels
- change vessels independently
- change vessels in minutes

## Vessels

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

## Simple Stirrer Alignment

- set and lock
- independent stirring for each vessel

## Patented Stirrer Coupling

- drop in
- no tools
- no fuss

## Hose Couplings

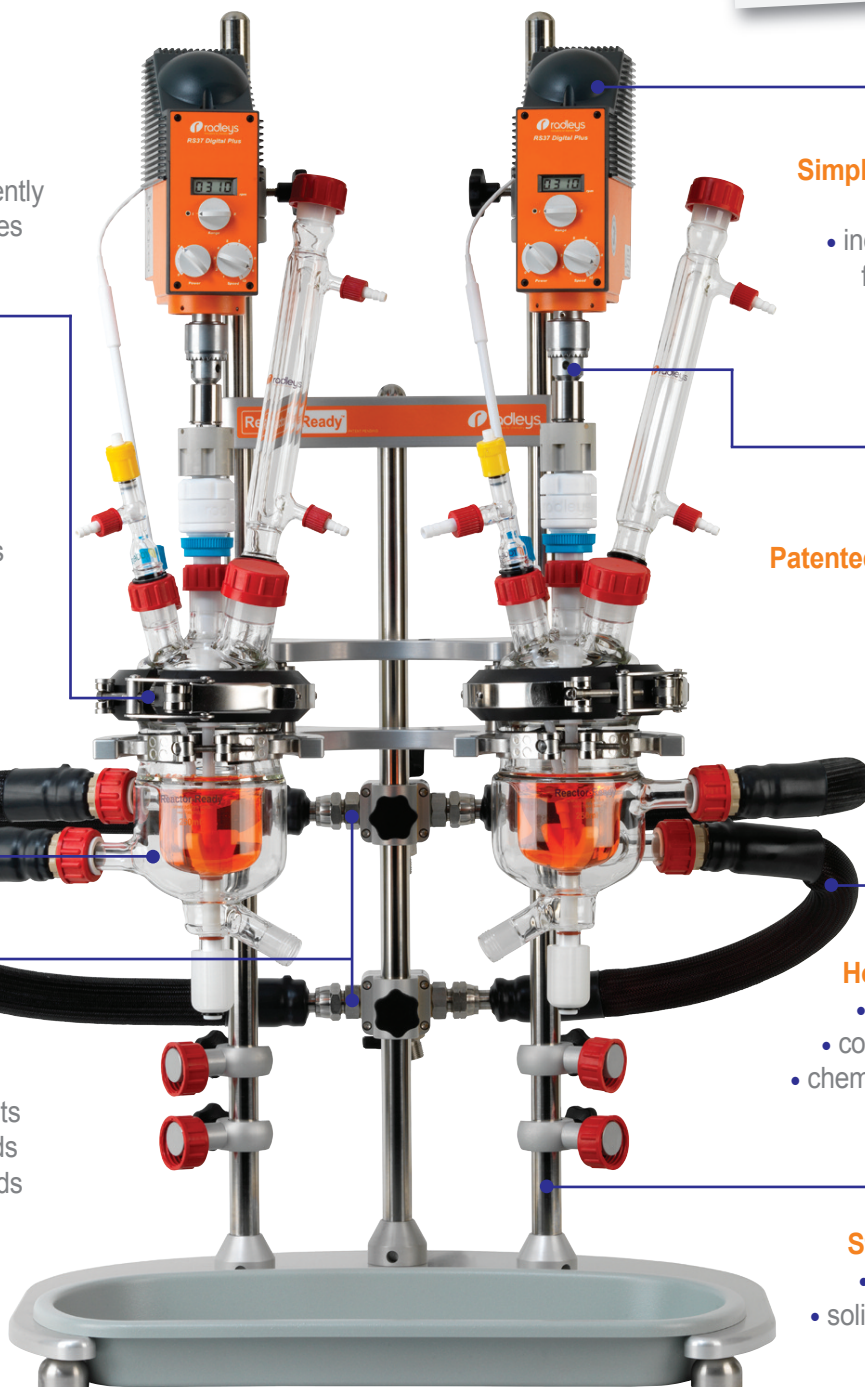
- quick release
- connect in seconds
- chemical resistant PEEK

## Strong Framework

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

## Thermofluid Manifolds

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





# Why Reactor-Ready Duo?

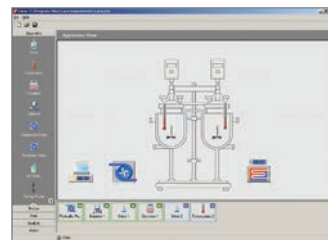
All the benefits of Reactor-Ready with two vessels in parallel or series

## Features include

- 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 operated and 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.



Similar vessels with  
Double Circulator Manifold Kit



Different vessels with  
Double Circulator Manifold Kit



Single vessel with  
Double Circulator Manifold Kit



Similar vessels with  
Single Circulator Manifold Kit



Different vessels with  
Single Circulator Manifold Kit



Single vessel with  
Single Circulator Manifold Kit



## How to order Reactor-Ready Duo...

1. Select the Reactor-Ready Duo Core.



2. Choose Manifold & Hose kit for one or two circulators.



3. Choose the Vessel Kits you need.



4. Select the overhead stirrers



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.



# Reactor-Ready Duo Core System

Easy-to-order Reactor-Ready Duo Core system includes all the framework components required for operation

## Features include

- Robust heavy-duty framework features solid stainless steel support rods.
- Two separate quick release clamps support each of the vessels independently.
- Large drip tray will retain vessel contents.
- Manifold & Hose kits must be ordered separately.

## Core System includes - RR121300

- Stand with Base, Support Rods, Bosses and all Clamps
- 2 x Glass Reaction Vessel Lids
- 2 x Vessel FEP O-ring seals and PTFE Centering Collars
- 2 x PTFE Stirrer Guides and Couplings
- HDPE Drip Tray
- 2 x Stainless steel Stirrer Drive Couplings
- 2 x Stainless steel Vessel Support Collars
- Locking Rod for Support Rod Bosses



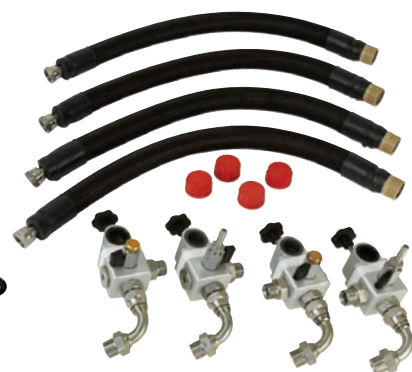
# Reactor-Ready Duo Manifolds & Hoses

A choice of manifold kits for use with one or two thermoregulators

## Double Circulator Manifold & Hose Kit - RR121310

This double circulator kit is designed to work with two separate thermoregulators controlling the temperature of each vessel independently. With this set-up both vessels can operate at different temperatures.

- R/H Upper Return Manifold with Vent Valve
- L/H Upper Return Manifold with Vent Valve
- R/H Lower Supply Manifold with Drain Valve
- L/H Lower Supply Manifold with Drain Valve
- 4 x Quick-Release Insulated Hoses, 60cm
- 4 x Sealing Caps for Hoses



## Single Circulator Manifold & Hose Kit - RR121305

This single circulator kit is designed to work with one thermoregulator controlling the temperature of both vessels simultaneously. With this set-up both vessels would operate at the same temperature. The manifolds are supplied with a blanking plug should you wish to run only one vessel.

- Central Upper Return Manifold with Vent Valve
- Central Lower Supply Manifold with Drain Valve
- 4 x Quick-Release Insulated Hoses, 70cm
- 4 x Sealing Caps for Hoses
- 2 x Stainless steel blanking plugs





# RS Overhead Stirrers

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

## Stirrer models include

- RS27 Standard for medium to high viscosity mixing up to 60,000 mPa s.
- RS37 Digital Plus for high viscosity mixing up to 100,000 mPa s with highly accurate speed settings.
- RS50 Control for medium viscosity mixing up to 10,000 mPa s with highly accurate speed and torque settings and RS232 interface for software control.
- RS100 Plus Control for precisely controlled, high viscosity mixing up to 100,000 mPa s. Digital control maintains constant speed even under changing loads. RS232 interface.

	RS27 Standard	RS37 Digital Plus	RS50 Control	RS100 Control Plus
Cat No.	RR91302 & RR91302/EURO	RR91306 & RR91306/EURO	RR91308 & RR91308/EURO	RR91312 & RR91312/EURO
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
Overload protection	Automatic cut-out	Automatic cut-out	Automatic cut-out features LED	Automatic cut-out features LED
Viscosity up to (mPa s)	60,000	100,000	10,000	100,000
RS232 interface	-	-	Yes	Yes



RS27 Standard



RS37 Digital Plus



RS50 Control



RS100 Control Plus

# Thermoregulators & Circulators

## Which Thermoregulator should you choose

- Radleys are a Huber distribution and service partner, so we recommend the Huber range of thermoregulators, circulators, chillers and waterbaths. However Reactor-Ready is compatible with all leading brands of thermoregulator including Julabo, Lauda, Polyscience, Haake and many others.
- Also available are a full range of hoses, adapters, temperature probes and thermofluid for all applications.
- For technical assistance in selecting the thermoregulator and accessories for your application, whatever the brand, please contact your local distributor or email sales@radleys.co.uk.



Huber Petite Fleur - Baby Tango  
-40°C to 200°C

Description	Temperature Range °C	Heating Power (kW)	Cooling Power at 0°C (kW)	Application Examples	
Huber Ministat 230	-45°C to 200°C	2.0	0.38	250ml	Cool to -10°C in <1hr, then heat to 130°C in <½hr
				1 Litre	Control at 0°C, then heat to 100°C in 20 mins
Huber Petite Fleur	-40°C to 200°C	1.5	0.45	500ml	Cool to -20°C in approx ½hr, then heat to 150°C in <½hr
				1Litre	Heat to 150°C, then cool to 0°C at > 2.5K/min
Huber Unistat Tango	-45°C to 250°C	1.5/3.0	0.7	1 Litre	Cool to -30°C in <1hr, then heat to 180°C in <1hr
				2 Litre	Heat to 180°C, then cool to 20°C in approx 1hr
Huber Unistat 405	-45°C to 250°C	1.5/3.0	1.0	2 Litre	Cool to -20°C in <½hr, then heat to 100°C in <½hr
				5 Litre	Control at 20°C, then cool to -20°C in approx 70mins
Huber Unistat 705	-75°C to 250°C	3.0	0.65	1 Litre	Control at 20°C, then cool to -50°C in 40mins
				5 Litre	Cool to -40°C at approx 1K/min, then heat to 150°C in <1hr

The above applications are intended as a guide to the relative performance of each Huber Thermoregulator with a range of vessel sizes and are not a prediction of actual performance. To achieve optimum performance the use of vacuum jacketed vessels is recommended for below ambient temperature applications.



# Reaction Vessels

## Jacketed, vacuum jacketed and process styles

### Features include

- Precision engineered borosilicate glass vessels can be used with Reactor-Ready & Reactor-Ready Duo.
- DN100 ground and polished flat flange combines with the FEP encapsulated O-ring and our unique self centering PTFE collar to offer a leak-tight seal between the vessel and lid.
- Convenient and cost effective vessel kits include stirrer, temperature probe and side-arm coupling.

### Vessels feature V4 Zero Dead Space Drain Stopcock

- Exclusive stopcock design prevents over-tightening that can cause glass breakage.
- Piston design allows quick and safe removal, eliminating the cleaning and assembly problems associated with other stopcock styles.
- Glass filled PTFE piston prevents leaking or weeping across the full temperature range (-70°C to +230°C)
- Interchangeable between vessels with a full range of replacement parts and FEP O-rings.
- The large 15mm bore minimises sample hold-up and is ideal for slurries (25mm available on request).

### DN100 5 neck Glass Lid fits all Vessel sizes

- DN100 lid with 5 x Rodaviss, grease free, safety joints. B24 centre, B34, B29, B24 and B19 side joints.
- All Rodaviss joints are interchangeable with ordinary A, B and C length conical joints.
- Rodaviss A length joints available if required (please add a suffix /US to lid catalogue number).



100ml Single Jacketed Process Vessel



100ml Vacuum Jacketed Process Vessel



250ml Single Jacketed Vessel



250ml Vacuum Jacketed Vessel



500ml Single Jacketed Vessel



500ml Vacuum Jacketed Vessel



1000ml Single Jacketed Vessel



1000ml Vacuum Jacketed Vessel



2000ml Single Jacketed Vessel



2000ml Vacuum Jacketed Vessel



5000ml Single Jacketed Vessel



5000ml Vacuum Jacketed Vessel



## Standard Vessels

100ml Single Jacketed Process Vessel



100ml Vacuum Jacketed Process Vessel



250ml Single Jacketed Process Vessel



250ml Vacuum Jacketed Process Vessel



500ml Single Jacketed Process Vessel



500ml Vacuum Jacketed Process Vessel



1000ml Single Jacketed Process Vessel



1000ml Vacuum Jacketed Process Vessel



2000ml Single Jacketed Process Vessel



2000ml Vacuum Jacketed Process Vessel



5000ml Single Jacketed Process Vessel



5000ml Vacuum Jacketed Process Vessel



## Process Vessels - mimic the geometry of plant scale reactors

Feature a 1.25 to 1 ratio of internal height to internal diameter, with dish shaped bottom.



# Reaction Vessel Kits

Reaction Vessel Kits make ordering vessels and accessories simple and much more cost effective

## Standard Reaction Vessel Kits

These cost effective Vessel Kits include the vessel and accessories you need to get started. The Pt100 probe and anchor stirrer included in each kit are matched to the vessel size. Each Vessel Kit includes:

- Reaction Vessel
- PTFE Anchor Stirrer
- Sidearm Couplings
- Pt100 PTFE Temperature Probe with Lemo Connector
- PTFE Temperature Probe Adapter



## Process Reaction Vessel Kits

Process Vessel Kits include a Pt100 temperature probe and turbine stirrer matched to the vessel size. Each Vessel Kit includes:

- Reaction Vessel
- PTFE Turbine Stirrer
- Sidearm Couplings
- Pt100 PTFE Temperature Probe with Lemo Connector
- PTFE Temperature Probe Adapter



# Glassware & Accessories

Wide choice of standard glassware to suit your application

Glassware features Rodaviss joints and is compatible with Reactor-Ready lid



Boss Head



3 pronged clamp



Condenser Liebig, B29



Condenser Double Surface, B29



Condenser Jacket Coil, B29



Dropping Funnel Equalising Arm, B24



PTFE Hose Adapter, B19



Liquid Additions Adapter, B24



Glass Cone Stopper, B29



Reducing Adapter, B29



Right Angle Adapter, B29



Enlarging Adapter, B29



Reflux Divider Head, B29



Reflux Divider Head Receiver Bend, B24



Valved Liquid Inlet Adapter, B24



Gas Purge Adapter, B24



Oil Bubbler, B24



Solid Additions Funnel, B34



Swan Neck Adapter, B24

## How to order Reactor-Ready

1. Select the Reactor-Ready Core: RR212000.
2. Choose the vessel kit or kits you require by selecting vessel volume and style.
3. Select the overhead stirrer you require.
4. If you need a thermoregulator, hoses, hose adapters, thermofluid or accessory glassware, then select from the accessory list opposite.
5. If you need automation, add the Control Software and Data Hub.

### Reactor-Ready Core System

- RR121000 Reactor-Ready Core System includes:
- Stand with base, drip tray, support rods, bosses and all clamps
  - Vessel to framework insulated hoses with quick-release connections
  - Upper & lower drain-down manifolds
  - PTFE Stirrer guide and coupling
  - Glass reaction vessel lid with Rodaviss sealing caps\*
  - Vessel FEP O-ring seal and PTFE centering collar
  - 2 x Stainless steel vessel support collars

\*US core supplied with US specification lid: 5 neck lid - 1 x A19, 1 x B24, 2 x A24, 1 x A29

**Important:** Hoses to connect the Reactor-Ready framework to your thermoregulator are not included. You will require hoses with an M24x1.5 female connection or appropriate adapters. See opposite for hoses, adapters and suitable thermoregulators.

### Standard Reaction Vessel kits

These popular vessel kits include all you need to get started; glass reaction vessel, PTFE anchor stirrer paddle, PTFE Pt100 temp probe (with Lemo plug for connection to the thermoregulator) and PTFE temperature probe adapter.

- |          |                                   |
|----------|-----------------------------------|
| RR120010 | 250ml Single Jacketed Vessel Kit  |
| RR120015 | 250ml Vacuum Jacketed Vessel Kit  |
| RR120020 | 500ml Single Jacketed Vessel Kit  |
| RR120025 | 500ml Vacuum Jacketed Vessel Kit  |
| RR120030 | 1000ml Single Jacketed Vessel Kit |
| RR120035 | 1000ml Vacuum Jacketed Vessel Kit |
| RR120040 | 2000ml Single Jacketed Vessel Kit |
| RR120045 | 2000ml Vacuum Jacketed Vessel Kit |
| RR120050 | 5000ml Single Jacketed Vessel Kit |
| RR120055 | 5000ml Vacuum Jacketed Vessel Kit |



Includes  
Anchor Stirrer

### RS Overhead Stirrers

Other overhead stirrer options are available on request.

- |              |   |
|--------------|---|
| RR91302      | RS27 Standard Overhead Stirrer 230v UK Plug             |
| RR91302/EURO | RS27 Standard Overhead Stirrer 230v Euro Plug           |
| RR91306      | RS37 Digital Plus Overhead Stirrer 230v UK Plug         |
| RR91306/EURO | RS37 Digital Plus Overhead Stirrer 230v Euro Plug       |
| RR91308      | RS50 Control Overhead Stirrer 230v UK Plug              |
| RR91308/EURO | RS50 Control Overhead Stirrer 230v Euro Plug            |
| RR91312      | RS100 Control Plus Overhead Stirrer with 230v UK Plug   |
| RR91312/EURO | RS100 Control Plus Overhead Stirrer with 230v Euro Plug |

## How to order Reactor-Ready Duo

1. Select the Reactor-Ready Duo Core: RR213000.
2. Choose Manifold & Hose kit for one or two circulators.
3. Choose the Vessel Kit or Kits you require by selecting the vessel volume & style.
4. Select the overhead stirrers you require.
5. If you need a thermoregulator, hoses, hose adapters, thermofluid or accessory glassware, then select from the accessory list opposite.
6. If you need automation, add the Control Software and Data Hub.

### Reactor-Ready Duo Core System

- RR121300 Reactor-Ready Duo Core System includes:
- Duo stand with base, drip tray, support rods, bosses and all clamps
  - 2 x PTFE Stirrer guides and couplings
  - 2 x Glass reaction vessel lids with Rodaviss sealing caps\*
  - 2 x Vessel FEP O-ring seal and PTFE centering collars
  - 2 x Stainless steel vessel support collars

\*US core supplied with US specification lid: 5 neck lid - 1 x A19, 1 x B24, 2 x A24, 1 x A29

**Important:** Hoses to connect the Reactor-Ready framework to your thermoregulator are not included. You will require hoses with an M24x1.5 female connection or appropriate adapters. See opposite for hoses, adapters and suitable thermoregulators.

### Double Circulator Manifold & Hose Kit

- RR121310 Double Circulator Manifold and Hose Kit includes:
- R/H Upper Return Manifold with Vent Valve
  - L/H Upper Return Manifold with Vent Valve
  - R/H Lower Supply Manifold with Drain Valve
  - L/H Lower Supply Manifold with Drain Valve
  - 4 x Quick-Release Insulated Hoses, 60cm
  - 4 x Sealing Caps for Hoses

### Single Circulator Manifold & Hose Kit

- RR121305 Single Circulator Manifold and Hose Kit includes:
- Central Upper Return Manifold with Vent Valve
  - Central Lower Supply Manifold with Drain Valve
  - 4 x Quick-Release Insulated Hoses, 70cm
  - 4 x Sealing Caps for Hoses
  - 4 x Stainless steel blanking plugs

### Process Reaction Vessel Kits

Kits include; process vessel, turbine stirrer paddle, PTFE Pt100 temp probe (with Lemo plug for connection to the thermoregulator) and PTFE temperature probe adapter.

- |          |   |
|----------|---|
| RR120105 | 100ml Single Jacketed Process Vessel Kit  |
| RR120107 | 100ml Vacuum Jacketed Process Vessel Kit  |
| RR120110 | 250ml Single Jacketed Process Vessel Kit  |
| RR120115 | 250ml Vacuum Jacketed Process Vessel Kit  |
| RR120120 | 500ml Single Jacketed Process Vessel Kit  |
| RR120125 | 500ml Vacuum Jacketed Process Vessel Kit  |
| RR120130 | 1000ml Single Jacketed Process Vessel Kit |
| RR120135 | 1000ml Vacuum Jacketed Process Vessel Kit |
| RR120140 | 2000ml Single Jacketed Process Vessel Kit |
| RR120145 | 2000ml Vacuum Jacketed Process Vessel Kit |
| RR120150 | 5000ml Single Jacketed Process Vessel Kit |
| RR120155 | 5000ml Vacuum Jacketed Process Vessel Kit |



Includes  
Turbine Stirrer

## Reactor-Ready Duo reaction vessel compatibility guide

The following combinations of reaction vessels can be used in the Reactor-Ready Duo.

Standard Vessel, Single Jacketed					
	250ml	500ml	1000ml	2000ml	5000ml
250ml	●	●	●	●	●
500ml	●	●	●	●	●
1000ml	●	●	●	●	●
2000ml	●	●	●	●	●
5000ml	●	●	●	●	●

Process Vessel, Single Jacketed						
	100ml	250ml	500ml	1000ml	2000ml	5000ml
100ml	●	●	●	●	●	●
250ml	●	●	●	●	●	●
500ml	●	●	●	●	●	●
1000ml	●	●	●	●	●	●
2000ml	●	●	●	●	●	●
5000ml	●	●	●	●	●	●

Standard Vessel, Vacuum Jacketed					
	250ml	500ml	1000ml	2000ml	5000ml
250ml	●	●	●	●	●
500ml	●	●	●	●	●
1000ml	●	●	●	●	●
2000ml	●	●	●	●	●
5000ml	●	●	●	●	●

Process Vessel, Vacuum Jacketed						
	100ml	250ml	500ml	1000ml	2000ml	5000ml
100ml	●	●	●	●	●	●
250ml	●	●	●	●	●	●
500ml	●	●	●	●	●	●
1000ml	●	●	●	●	●	●
2000ml	●	●	●	●	●	●
5000ml	●	●	●	●	●	●



## Reactor-Ready and Reactor-Ready Duo Accessories

### Huber Thermoregulators (Circulators)

HB2015.0005.04	Ministat 230-CC NR
HB1030.0001.04	Petite Fleur
HB1030.0001.04ET	Petite Fleur with 4 Litre Expansion Tank
HB1000.0001.05	Unistat Tango
HB1002.0003.05	Unistat 405
HB1001.0002.05	Unistat 705

**Important:** For advice on selecting the thermoregulator, thermofluid or hoses for your application please contact our technical sales team.

### Thermoregulator Hoses, Adapters & Thermofluid

#### Insulated Hose with Plastic Inner

HB9325	M24x1.5 Insulated Hose NW12	100cm	-60°C to +260°C
HB9326	M24x1.5 Insulated Hose NW12	150cm	-60°C to +260°C
HB9327	M24x1.5 Insulated Hose NW12	200cm	-60°C to +260°C
HB9328	M24x1.5 Insulated Hose NW12	300cm	-60°C to +260°C

#### Insulated Hose with Metal Inner

HB9274	M24x1.5 Insulated Hose NW12	100cm	-100°C to +350°C
HB9275	M24x1.5 Insulated Hose NW12	150cm	-100°C to +350°C
HB9276	M24x1.5 Insulated Hose NW12	200cm	-100°C to +350°C
HB9277	M24x1.5 Insulated Hose NW12	300cm	-100°C to +350°C

#### Adapters

HB6724	M24x1.5 Female to M16x1 Male Adapter
HB6945	M24x1.5 Male to M16x1 Female Adapter
HB6723	M24x1.5 Female to M30x1.5 Male Adapter
HB6195	M16x1 90 degree Adapter
HB9256	M24x1.5 90 degree Adapter
HB6089	M16x1 Nut
HB12634	M24x1.5 Nut
HB6086	M16x1 Hose Connector NW8
HB9471	M24x1.5 Hose Connector NW12
HB6091	M16x1 Isolating Ball Valve
HB9236	M24x1.5 Isolating Ball Valve

#### Thermofluid

HB6161	SiOil M20.235.20, 5 Litre	-20°C to +235°C
HB6162	SiOil M20.235.20, 10 Litre	-20°C to +235°C
HB6163	SiOil M40.165.10, 5 Litre	-40°C to +165°C
HB6164	SiOil M40.165.10, 10 Litre	-40°C to +165°C
HB6165	SiOil M60.115.05, 5 Litre	-60°C to +115°C
HB6166	SiOil M60.115.05, 10 Litre	-60°C to +115°C
HB6479	DW-Therm M90.200.02, 10 Litre	-90°C to +200°C

**Important:** For custom glassware please contact your local distributor or call our sales team

### Glassware Accessories

RR139005	Condenser Liebig 250mm B29 + GL14 + fittings
RR139007	Condenser Double Surface 200mm B29 + GL14 + fittings
RR139009	Condenser Jacket Coil Rodaviss B29 + GL14 + fittings
RR139011	Right Angle Adapter B29 + GL14 + PTFE fittings
RR139013	50ml Graduated Dropping Funnel Equalising Arm B24
RR139015	100ml Graduated Dropping Funnel Equalising Arm B24
RR139017	250ml Graduated Dropping Funnel Equalising Arm B24
RR139019	500ml Graduated Dropping Funnel Equalising Arm B24
RR139021	1000ml Graduated Dropping Funnel Equalising Arm B24
RR139023	Swan Neck Adapter B24 to B24
RR139025	Gas Purge Adapter B24 + GL14 + fittings
RR139027	Glass Cone Stopper B19
RR139029	Glass Cone Stopper B24
RR139031	Glass Cone Stopper B29
RR139033	Glass Cone Stopper B34
RR139034	Enlarging Adapter B19 to B24
RR139035	Enlarging Adapter B24 to B29
RR139037	Enlarging Adapter B29 to B34
RR139039	Reducing Adapter B24 to B19
RR139041	Reducing Adapter B29 to B19
RR139043	Reducing Adapter B29 to B24
RR139045	Reducing Adapter B34 to B19
RR139047	Reducing Adapter B34 to B24
RR139049	Reducing Adapter B34 to B29
RR139051	Oil Bubbler Type 1 B24 + GL14 + fittings
RR139053	Solid Additions Funnel B34 (with extended tube)
RR139091	Liquid Additions Tubing Adapter B24 to GL14
RR139057	Valved Liquid Inlet Adapter B24 to GL14
RR139059	Reflux Divider Head B29
RR139061	Reflux Divider Head Receiver Bend
RR139062	Reflux Divider Ball Joint Clip S19
RR139063	PTFE Hose Adapter B19 for 12mm ID Tubing
RR139067	Boss Head
RR139069	3-Prong Clamp
RR139071	100ml Receiver Flask B24
RR139073	250ml Receiver Flask B24
RR139075	500ml Receiver Flask B24
RR139077	1000ml Receiver Flask B24
RR139079	PTFE Flexible Bellows B24
RR139081	PTFE Flexible Bellows B29
RR139083	PTFE Flexible Bellows B34
RR139200	Reflux Divider Kit
RR139202	Reflux Divider with Vapour Temp Kit

**US A Length Joints:** For US 'A Length' glass cones and sockets please add a suffix /US to the catalogue number when placing your order

### Reaction Vessel Lid

RR136000	5 Neck Lid - 1 x B19, 2 x B24, 1 x B29, 1 x B34 + Rodaviss sealing caps
RR136000/US	5 Neck Lid - 1 x A19, 1 x B24, 2 x A24, 1 x A29 + Rodaviss sealing caps

### Reaction Vessel Support Collar

RR121048	Vessel Support Collar
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**Important:** The support collar is required to support vessels within the quick-release clamp. Two collars are supplied with each Reactor-Ready or Reactor-Ready Duo Core system, however extra collars can be purchased using the above Cat. no.

### PTFE Pt100 Temperature Probes & Adapters

RR140250	Probe 8mm with Lemo Plug - 250ml & 500ml vessels
RR141000	Probe 9mm with Lemo Plug - 1000ml & 2000ml vessels
RR145000	Probe 9mm with Lemo Plug - 5000ml vessel
RR140010	PTFE Temperature Probe Adapter - 8mm
RR140015	PTFE Temperature Probe Adapter - 9mm

### Standard Reaction Vessels Only

RR130250	250ml Single Jacketed Vessel
RR130255	250ml Vacuum Jacketed Vessel
RR130500	500ml Single Jacketed Vessel
RR130550	500ml Vacuum Jacketed Vessel
RR131000	1000ml Single Jacketed Vessel
RR131050	1000ml Vacuum Jacketed Vessel
RR132000	2000ml Single Jacketed Vessel
RR132050	2000ml Vacuum Jacketed Vessel
RR135000	5000ml Single Jacketed Vessel
RR135050	5000ml Vacuum Jacketed Vessel

### PTFE Stirrer Shafts (for Standard Vessels)

RR150250	Anchor PTFE Stirrer Shaft - 250ml vessels
RR150255	Retreat Curve PTFE Stirrer Shaft - 250ml vessels
RR150260	Turbine PTFE Stirrer Shaft - 250ml vessels
RR150500	Anchor PTFE Stirrer Shaft - 500ml vessels
RR150505	Retreat Curve PTFE Stirrer Shaft - 500ml vessels
RR150510	Turbine PTFE Stirrer Shaft - 500ml vessels
RR151000	Anchor PTFE Stirrer Shaft - 1000ml vessels
RR151005	Retreat Curve PTFE Stirrer Shaft - 1000ml vessels
RR151010	Turbine PTFE Stirrer Shaft - 1000ml vessels
RR152000	Anchor PTFE Stirrer Shaft - 2000ml vessels
RR152005	Retreat Curve PTFE Stirrer Shaft - 2000ml vessels
RR152010	Turbine PTFE Stirrer Shaft - 2000ml vessels
RR155000	Anchor PTFE Stirrer Shaft - 5000ml vessels
RR155005	Retreat Curve PTFE Stirrer Shaft - 5000ml vessels
RR155010	Turbine PTFE Stirrer Shaft - 5000ml vessels

### Process Reaction Vessels Only

RR130102	100ml Single Jacketed Process Vessel
RR130152	100ml Vacuum Jacketed Process Vessel
RR130252	250ml Single Jacketed Process Vessel
RR130257	250ml Vacuum Jacketed Process Vessel
RR130502	500ml Single Jacketed Process Vessel
RR130552	500ml Vacuum Jacketed Process Vessel
RR131002	1000ml Single Jacketed Process Vessel
RR131052	1000ml Vacuum Jacketed Process Vessel
RR132002	2000ml Single Jacketed Process Vessel
RR132052	2000ml Vacuum Jacketed Process Vessel
RR135002	5000ml Single Jacketed Process Vessel
RR135052	5000ml Vacuum Jacketed Process Vessel

### PTFE Stirrer Shafts (for Process Vessels)

RR150102	Anchor PTFE Stirrer Shaft - 100ml Process Vessels
RR150107	Retreat Curve PTFE Stirrer Shaft - 100ml Process Vessels
RR150112	Turbine PTFE Stirrer Shaft - 100ml Process Vessels
RR150252	Anchor PTFE Stirrer Shaft - 250ml Process Vessels
RR150257	Retreat Curve PTFE Stirrer Shaft - 250ml Process Vessels
RR150262	Turbine PTFE Stirrer Shaft - 250ml Process Vessels
RR150502	Anchor PTFE Stirrer Shaft - 500ml Process Vessels
RR150507	Retreat Curve PTFE Stirrer Shaft - 500ml Process Vessels
RR150512	Turbine PTFE Stirrer Shaft - 500ml Process Vessels
RR151002	Anchor PTFE Stirrer Shaft - 1000ml Process Vessels
RR151007	Retreat Curve PTFE Stirrer Shaft - 1000ml Process Vessels
RR151012	Turbine PTFE Stirrer Shaft - 1000ml Process Vessels
RR152002	Anchor PTFE Stirrer Shaft - 2000ml Process Vessels
RR152007	Retreat Curve PTFE Stirrer Shaft - 2000ml Process Vessels
RR152012	Turbine PTFE Stirrer Shaft - 2000ml Process Vessels
RR155002	Anchor PTFE Stirrer Shaft - 5000ml Process Vessels
RR155007	Retreat Curve PTFE Stirrer Shaft - 5000ml Process Vessels
RR155012	Turbine PTFE Stirrer Shaft - 5000ml Process Vessels

### General Maintenance Accessories

RR121150	Reactor-Ready Maintenance Kit (includes items listed below)
RR121027	Oil Wipe for Support Rods, pack 10
RR121063	Stirrer Guide Bearing Seal
RR121064	Stirrer Guide Lock Nut Pack Incl. Seal
RR121071	23mm Viton O-Rings for Quick Release Hose Coupling, pack 2
RR121072	28mm Viton O-Rings for Quick Release Hose Coupling, pack 2
RR121090	FEP Encapsulated Silicone Vessel O-ring
RR166100	Replacement 15mm Piston Top O-Ring
RR166102	Replacement 15mm Piston Middle O-Ring

NEW



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Integrate devices with an RS232 serial interface

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- 2 x Pt100 temperature sensor ports, with LEMO connection
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- 1 x Serial and 2 x Ethernet cables

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- AVA Software
- Laptop Controller
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Shire Hill, Saffron Walden,  
Essex, CB11 3AZ, United Kingdom.  
t: +44 1799 513320  
f: +44 1799 513283  
e: [sales@radleys.co.uk](mailto:sales@radleys.co.uk)