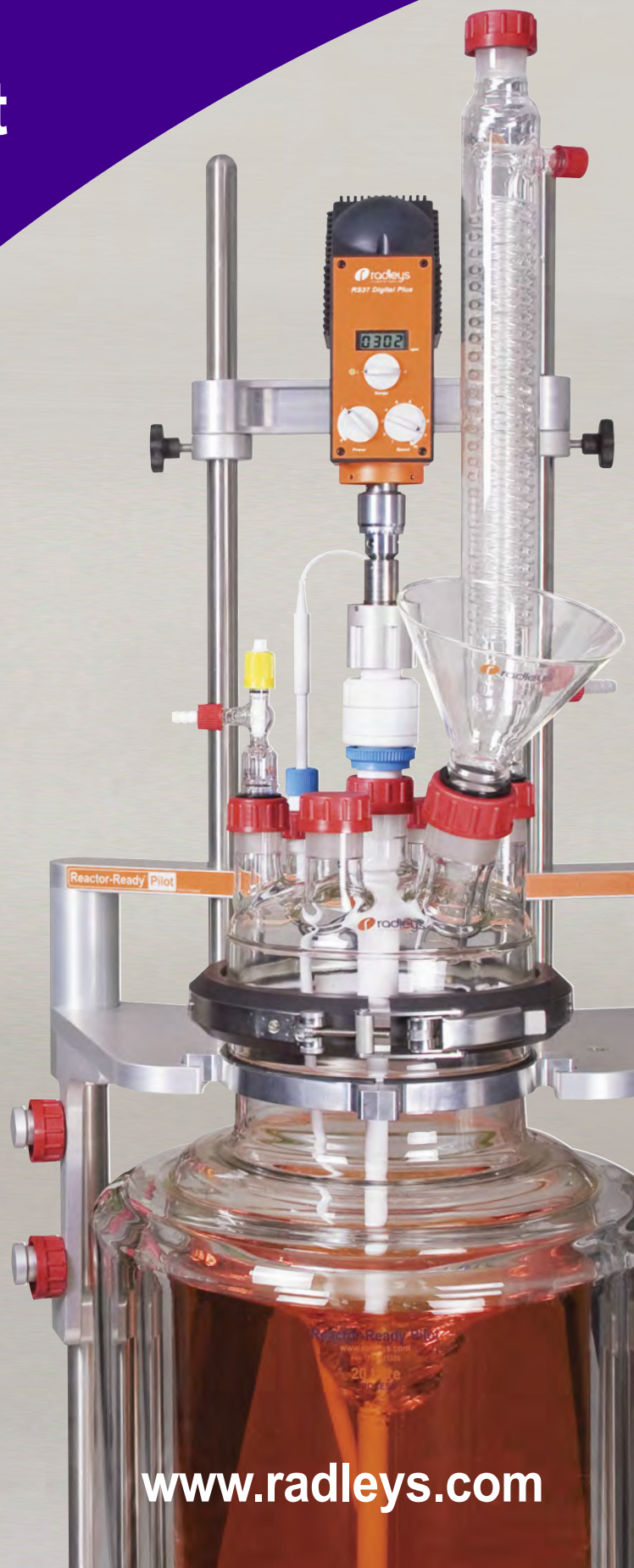


Reactor-Ready™ Pilot Lab Reactor

Patent Pending

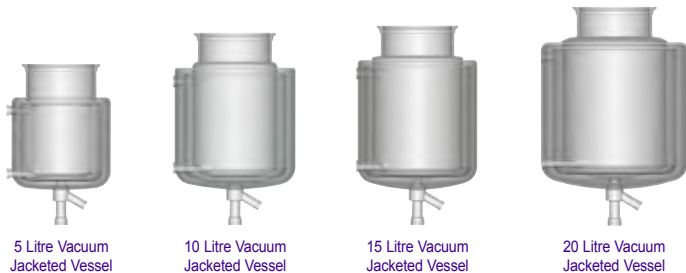
Innovative reaction
work station for
glass reaction
vessels from
5 to 20 litres



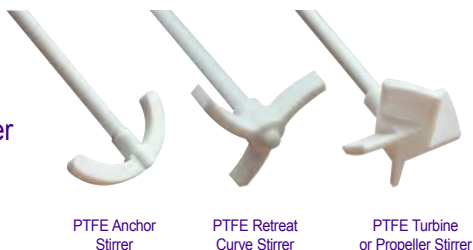
Reactor-Ready Pilot Lab Reactor

Replace multiple reactor set-ups with a single, universal, pilot scale system that accepts vessels from 5 to 20 litres

A single reaction system that accepts single and vacuum jacketed vessels from 5 to 20 litres



A choice of popular stirrer paddles



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



Simple Stirrer Alignment

- 6 axis stirrer adjustment
 - slide and glide
 - set and lock

Unique PTFE Vessel Clamp

- self centering
- quick release
- change vessels in minutes

Hose Couplings

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

Thermofluid Manifolds

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

Reactor-Ready Pilot with 10 litre Vacuum Jacketed Vessel



Change to Reactor-Ready Pilot because...

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



Universal Stirrer Support

- accepts all leading brands of overhead stirrer

Patented Stirrer Coupling

- drop in
- no tools
- no fuss

Standard Jacketed Vessels

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

Custom Vessels

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

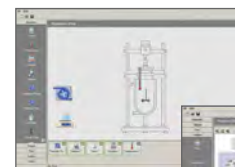
Compact, Mobile Framework

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

Reactor-Ready Pilot includes all of the features of the popular benchtop Reactor-Ready (100ml to 5 litres)



Optional software allows you to log and control ancillary devices



Data Hub

Compatible with all leading brands of circulator and thermoregulator



Compatible with Radleys and other leading brands of overhead stirrer



Reactor-Ready Pilot

Swap reaction vessels in minutes, NOT hours

Reactor-Ready Pilot is designed as a universal reactor work station that can be used for different vessel sizes and different projects. Reactor-Ready Pilot is ideal for process development, scale-up, pilot and kilo labs.

The beauty of Reactor-Ready Pilot 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 wide bore hose couplings.
- Range of single and vacuum jacketed vessels from 5 litres to 20 litres.
- Vessels manufactured at 1.25 to 1 ratio of internal height to diameter to mimic plant scale reactors.
- DN200 vessel flange.
- Accepts all leading brands of overhead stirrer and allows easy, tool free adjustment.
- Compact stainless steel framework accepts all vessel sizes.
- Self aligning stirrer coupling engages without the need for tools.
- Temperature range: -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 and control 3rd party 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 Pilot uses a robust support collar, which securely locates into a dedicated 'step' on the neck of each vessel, which then allows vessels to be changed like a cartridge.
- Vessel exchange is tool free and can be undertaken by one person.
- The solid aluminium collar locks securely into the support plate on the framework and allows the vessel to remain supported, even when not clamped.

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).

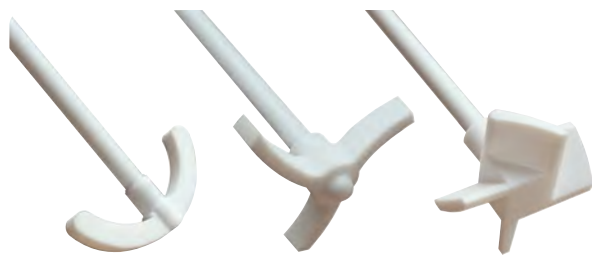


Anodised aluminium vessel support collar with Viton insert



Choice of PTFE stirring shafts

- Reactor-Ready Pilot is offered with a choice of PTFE Stirring Shafts: Anchor, Retreat Curve and Turbine or Propeller styles.
- A PTFE Turbine Stirring Shaft is included as standard with all 'Reaction Vessel Kits'.
- Custom stirrer design available on request.



PTFE Anchor Stirrer

PTFE Retreat Curve Stirrer

PTFE Turbine or Propeller Stirrer

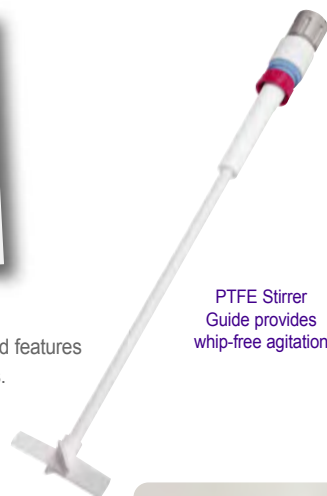
I-beam Support allows the Stirring Motor to be positioned with ease

- 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 Pilot accepts all leading brands of motor or air-powered overhead stirrer with support rods up to 16mm in diameter.



Whip-free stirrer guide

- The Reactor-Ready Pilot'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 wide bore 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.
- Insulated hoses have a 20mm ID, maximising 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 Pilot vessel connect to manifolds attached to the framework. These manifolds serve two important functions:
 1. Support the hose running from the vessel, thereby eliminating stress on the glass sidearm.
 2. Allow 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.



Compact, mobile framework

- Manufactured from chemically resistant stainless steel, anodised aluminium with a powder coated steel base.
- One framework fits all vessels sizes.
- Fits in a standard walk-in fumehood.
- Comes as standard with locking wheels and adjustable feet allowing the system to be fixed or mobile.
- Adjustable bracing bars on the rear of the framework, combine with a built-in spirit level in the top of the support plate to allow precise levelling.
- A range of suitable clamps and supports are available to hold accessory glassware and probes.
- Height reduction kits available for locations where fume hood height may be restricted.



Adjustable bracing bars with a built-in spirit level

Technical Specifications

Frame Height	1900mm with wheels (1800mm with feet)
Frame Height RR210070 200mm Height Reduction Kit	1700mm with wheels (1600mm with feet)
Frame Height RR210072 300mm Height Reduction Kit	1600mm with wheels (1500mm with feet)
Frame Width	540mm (approx. 880mm with hoses)
Frame Depth	650mm
Vessel sizes	5L, 10L, 15L, 20L
Temperature range	-70°C to +230°C
Maximum stirring speed	500rpm, short periods at 800rpm
Hose Size and Bore	M30, 20mm ID
Flange Size	DN200 flange
Lid Ports	6 or 7 ports
Max. Vacuum	10 mbar
Max. Pressure	0.5 Bar

How to order Reactor-Ready Pilot

1. Select the Reactor-Ready Pilot Core.



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



3. Choose the Vessel Kits you need.



4. Select the overhead stirrer you need.



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



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



Reactor-Ready Pilot in detail

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

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

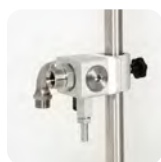
Precision ground DN200 lid and vessel flanges combine with PTFE collar and FEP encapsulated O-ring to offer superior sealing performance.

FEP encapsulated O-ring and unique, self centering PTFE collar to offer a leak-tight seal between the vessel and lid.



Hose Tidies allow the insulated hoses to be conveniently sealed and secured when not in use.

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

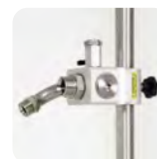


Quick release PEEK coupling allows rapid exchange of vessels without the use of tools. Operates over the temperature range -70°C to $+230^{\circ}\text{C}$.



Insulated, 20mm bore vessel-to-manifold hoses are supported by the manifold and frame; minimising stress on the glass sidearms.

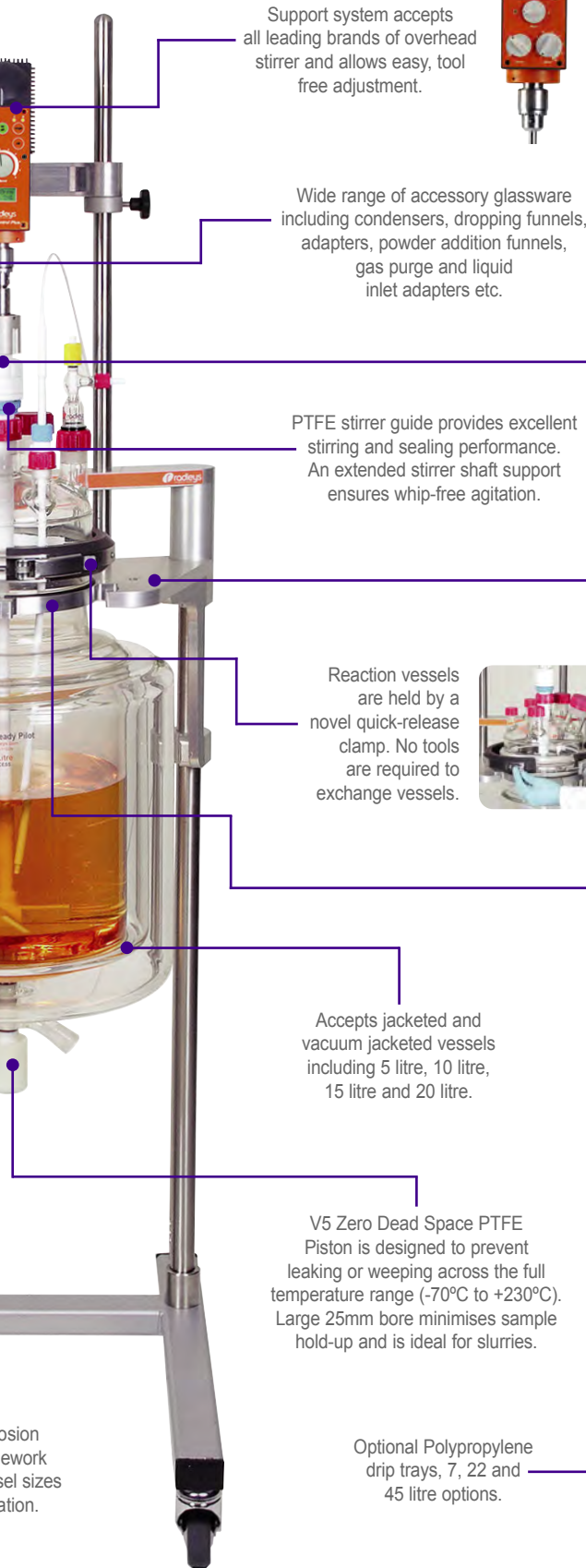
Thermofluid may be drained back to the thermoregulator or decanted via a fluid drain tap on the inlet manifold.



Comes as standard with both locking wheels and feet, allowing the system to be fixed or mobile.



Robust, corrosion resistant frame accepts all vessels without alteration.



Support system accepts all leading brands of overhead stirrer and allows easy, tool free adjustment.



Wide range of accessory glassware including condensers, dropping funnels, adapters, powder addition funnels, gas purge and liquid inlet adapters etc.



Patented drop-in stirrer coupling engages easily without the need for tools.

PTFE stirrer guide provides excellent stirring and sealing performance. An extended stirrer shaft support ensures whip-free agitation.

Built-in spirit level for precise levelling.



Reaction vessels are held by a novel quick-release clamp. No tools are required to exchange vessels.



Accepts jacketed and vacuum jacketed vessels including 5 litre, 10 litre, 15 litre and 20 litre.



Aluminium vessel support collar allows vessels to sit securely in the support plate even when not clamped. Matching 'step' on vessel neck ensures collar sits in correct position.

V5 Zero Dead Space PTFE Piston is designed to prevent leaking or weeping across the full temperature range (-70°C to +230°C). Large 25mm bore minimises sample hold-up and is ideal for slurries.

Optional Polypropylene drip trays, 7, 22 and 45 litre options.



Reactor-Ready Pilot Core System includes

- Base frame, support rods, vessel clamp, i-beam and stirrer support bosses.
- Vessel to manifold insulated hoses with quick-release connections.
- Lower inlet manifold with drain.
- Upper outlet manifold with vent.
- PTFE Stirrer guide.
- Stainless steel stirrer drive coupling.
- One aluminium vessel support collar.
- FEP flange O-ring and PTFE centering collar.



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 turbine 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 Turbine Stirrer.



Reaction Vessels

Jacketed and vacuum jacketed from 5 litres to 20 litres

Features include

- Precision engineered borosilicate glass vessels with DN200 flange.
- Double or vacuum jacketed vessels provide superior performance for heating and especially cooling.
- Process or dish shaped vessels feature a 1.25 to 1 ratio to mimic geometry of plant scale reactors.
- DN200 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 couplings.

Vessels feature V5 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 stopcocks.
- Glass filled PTFE pistons operate across the full temperature range -70°C to +230°C.
- Pistons are interchangeable between vessels with a full range of replacement parts and FEP O-rings.
- We recommend using Chemraz O-rings for temperatures above +150°C.
- The large 25mm bore pistons minimise sample hold-up and are ideal for slurries.

Glass filled PTFE piston with FEP encapsulated O-rings



FEP encapsulated O-ring with self centering PTFE collar

Vessel Lids

Precision ground lids. Choose from two standard configurations or request a custom design

DN200 Glass Lids fit all Vessel sizes

- DN200 lid with either 6 or 7, Rodaviss conical ground glass joints. Custom lid designs are available on request.
- Rodaviss joints are grease free, will not jam and are interchangeable with ordinary 1-in-10 B and A length tapered conical joints.
- Rodaviss A length joints available if required (please add a suffix /US to lid catalogue number).

RR236000 - 6 Neck DN200 Lid

- 1 x B34 central vertical - stirrer
- 1 x B19 side vertical - probe
- 1 x B24 side vertical - gas purge
- 1 x B29 side vertical - drop funnel, bubbler, liquid inlet adapter
- 1 x B34 side vertical - condenser and reflux
- 1 x B45 side angled - solid additions



RR236002 - 7 Neck DN200 Lid

- 1 x B34 central vertical - stirrer
- 1 x B19 side vertical - probe
- 1 x B24 side vertical - gas purge
- 1 x B29 side vertical - drop funnel, bubbler, liquid inlet adapter
- 2 x B34 side vertical - condenser and reflux
- 1 x B45 side angled - solid additions



Reaction Vessel Kits

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

Reaction Vessel Kits

These cost effective vessel kits include the vessel and accessories you need to get started. The Pt100 probe and turbine stirrer are matched to the vessel size. Kit includes:

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



Reaction Vessel Specifications

Jacketed and vacuum jacketed vessels with dish shaped bottom, feature a 1.25 to 1 ratio of internal height to diameter to mimic the geometry of plant scale reactors



Single jacketed

Popular choice, best suited for heating only applications.



	5 litre Single Jacketed Vessel	10 litre Single Jacketed Vessel	15 litre Single Jacketed Vessel	20 litre Single Jacketed Vessel
Cat No. (Reaction Vessel Only)	RR235050	RR235100	RR235150	RR235200
Cat No. (Reaction Vessel Kit)	RR220005	RR220015	RR220025	RR220035
Nominal Capacity	5 Litres	10 Litres	15 Litres	20 Litres
Total Working Volume	5.6 Litres	12.9 Litres	16.4 Litres	22.7 Litres
Internal Diameter	180mm	240mm	260mm	290mm
External Diameter	250mm	300mm	315mm	350mm
Jacketed Height	230mm	300mm	325mm	363mm
External Height (piston open)	526mm	606mm	640mm	674mm
Thermofluid Jacket Volume	4.6 Litres	6.7 Litres	5.7 Litres	10.3 Litres
Heat Transfer Area	0.16m ²	0.27m ²	0.31m ²	0.38m ²
Flange	DN200			
Sidearm	20mm ID Reactor-Ready			
Piston	V5 Zero Dead Space 25mm Glass Filled PTFE			
Piston Run-off	B24 Rodaviss Socket			

Vacuum jacketed

The outer vacuum jacket provides transparent insulation for faster cooling, lower temperatures and reduces frosting for improved contents visibility.



	5 litre Vacuum Jacketed Vessel	10 litre Vacuum Jacketed Vessel	15 litre Vacuum Jacketed Vessel	20 litre Vacuum Jacketed Vessel
Cat No. (Reaction Vessel Only)	RR235052	RR235102	RR235152	RR235202
Cat No. (Reaction Vessel Kit)	RR220010	RR220020	RR220030	RR220040
Nominal Capacity	5 Litres	10 Litres	15 Litres	20 Litres
Total Working Volume	5.6 Litres	12.9 Litres	16.4 Litres	22.7 Litres
Internal Diameter	180mm	240mm	260mm	290mm
External Diameter	300mm	350mm	350mm	415mm
Jacketed Height	225mm	300mm	325mm	363mm
External Height (piston open)	541mm	623mm	653mm	689mm
Thermofluid Jacket Volume	3.9 Litres	5.4 Litres	4.4 Litres	7.1 Litres
Heat Transfer Area	0.16m ²	0.27m ²	0.31m ²	0.38m ²
Flange	DN200			
Sidearm	20mm ID Reactor-Ready			
Piston	V5 Zero Dead Space 25mm Glass Filled PTFE			
Piston Run-off	B24 Rodaviss Socket			

Accessory Glassware

We have been manufacturing scientific glassware for over 45 years. If you don't see what you want, please let us know and we will be happy to quote for a custom option



* Indicates an item is available in other sizes or styles.

RR139300* Large Double Coil Rodaviss Condenser, B34	RR139007 Condenser Double Surface, 200mm, B29	RR139005 Condenser Liebig, 250mm, B29	RR139009 Condenser Jacket Coil, B29	RR139326* 1000ml Receiver Flask 3 x B24 Socket	RR139316* Solid Additions Funnel, B45 with extended tube	
RR139091* Adapter Rodaviss, B24 to GL14	RR139041* Reducing Adapter, B29 to B19	RR139011* Right Angle Adapter, B29	RR139037* Enlarging Adapter, B29 to B34	RR139065* PTFE Hose Adapter B24 to 15mm ID	RR139340 Vertical Run-Off Adapter B24 to Plain Stem	
RR139137 Run-Off Secondary Valve, B24 to Stopcock	RR139025* Gas Purge Adapter, B24	RR139057* Valved Right Angled Liquid Inlet Adapter, B24	RR139320 Reflux Divider Head, B34	RR139322 Reflux Divider Head, B34, Temp Probe Port	RR139314* Oil Bubbler, Type 1, B29	RR139081* PTFE Flexible Bellows, B29
RR139031* Glass Cone Stopper, B29	RR139372 4-Prong Large Clamp	RR139366* Chain Clamp	RR139364 Rubber Belt Clamp			
RR139360 Pilot Boss Head	RR139362 Rod Extender	RR139374 Universal Clamp Cork Jaws	RR139376 Lower Support Ring			

Reflux Divider Kits

Reflux divider kits allow condensed vapours to be either refluxed back into the reactor or diverted into a separate receiving vessel

- Choice of receiving flasks 500ml, 1, 2 and 5 litre. All receiver flasks feature three necks, decanting stopcock and are suitable for stacking. Receiver flasks must be ordered separately.
- Reflux divider kits are available with optional vapour temperature sensor.



Reactor-Ready Pilot with
RR239202 Reflux Divider Kit and two
RR139326 1000ml Receiver Flasks

RR239200 - Pilot Reflux Divider Kit

- RR139320 - Reflux Divider Head, B34 + GL18 fittings
- RR139300 - Large Double Coil Rodaviss Condenser 60mm B34 + GL18 + fittings
- RR139012 - Right Angle Adapter B34 + GL14 + PTFE fittings
- RR139332 - Adapter Rodaviss B24 to GL25
- RR139350 - GL25 HT Compression Fitting for 12mm OD Tubing
- RR139354 - PTFE Tubing 10mm ID x 12mm OD - 1m length
- RR139360 - 3 x Pilot Boss Head - 22-35mm, 8-12mm
- RR139372 - 4-Prong Large Clamp - 10mm rod, 30-80mm
- RR139376 - Lower Support Ring - 10m rod, 76mm ID
- RR139374 - Universal Clamp Cork Jaws - 10mm rod, 0-80mm

Note: A suitable receiver flask/s RR13934/6/8/30 is required to complete this kit.



RR239202 - Pilot Reflux Divider Kit with Vapour Temperature Probe

- RR139322 - Reflux Divider Head, B34 + GL18 fittings + B14 temp port
- RR139300 - Large Double Coil Rodaviss Condenser 60mm B34 + GL18 + fittings
- RR139012 - Right Angle Adapter B34 + GL14 + PTFE fittings
- RR139332 - Adapter Rodaviss B24 to GL25
- RR139350 - GL25 HT Compression Fitting for 12mm OD Tubing
- RR139354 - PTFE Tubing 10mm ID x 12mm OD - 1m length
- RR139133 - Pt100 PTFE Temp. Probe (Reflux Divider Head) + 2m Cable
- RR139135 - PTFE Temperature Probe Adapter (B14 for Reflux Divider Head)
- RR139360 - 3 x Pilot Boss Head - 22-35mm, 8-12mm
- RR139372 - 4-Prong Large Clamp - 10mm rod, 30-80mm
- RR139374 - Universal Clamp Cork Jaws - 10mm rod, 0-80mm
- RR139376 - Lower Support Ring - 10m rod, 76mm ID

Note: A suitable receiver flask/s RR13934/6/8/30 is required to complete this kit.



Other Accessories

PTFE Stirring Shafts

- Chemically inert PTFE rotors moulded onto a 16mm ϕ PTFE encapsulated metal core.
- Available in Anchor, Retreat Curve and Turbine or Propeller styles.
- Suitable for use up to 230°C.

PTFE Adjustable Rotors

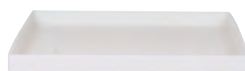
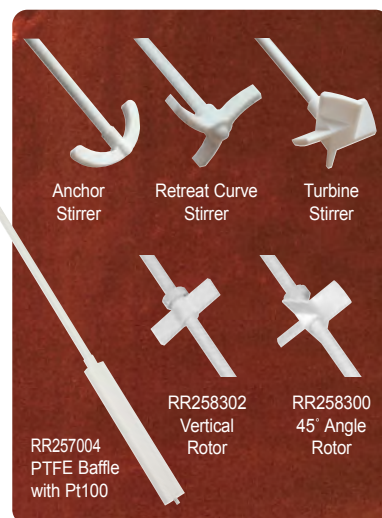
- Fit 16mm shafts and can be position anywhere along shaft.
- Chemically inert PTFE with glass filled PTFE locking nut.
- RR258300 - 4 blade 45° Angle Rotor forces the product down and creates good axial flow with low shear force.
- RR258302 - 2 Blade Vertical Rotor creates tangential flow with gentle stirring.

PTFE Baffle Probes

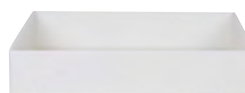
- Designed to improve agitation and promote thorough mixing.
- Fully encapsulated in PTFE with a stainless steel core for rigidity.
- Available with built-in Pt100 temperature probe.
- Available in 600mm and 700mm lengths.

Polypropylene Drip Trays

- Chemically resistant polypropylene designed to catch any spills and vessel contents in case of breakage.
- Available in 7, 22 and 45 litre capacities.
- Slide easily onto the Reactor-Ready Pilot base.



RR210062 7L Capacity



RR210064 22L Capacity



RR210066 45L Capacity



RS27 Standard

RS37 Digital Plus



RS50 Control

RS100 Control Plus

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
Stirring cap. H ₂ O up to (l)	25	40	40	100
RS232 interface	-	-	Yes	Yes

Thermoregulators and 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 Pilot is compatible with all leading brands of thermoregulator including Julabo, Lauda, Polyscience, Haake and many others.
- Also available are a range of hoses, adapters, temperature probes and thermofluid for all applications.
- For technical assistance (whatever the brand) please contact your local Radleys distributor.



Huber Unistat 610

Description	Temp Range °C	Heating Power (kW)	Cooling Power 0°C (kW)	Application Examples		
				Vessel Size	Cooling Example	Heating Example
Unistat Tango	-45 to +250	1.5	0.7	5 Litre	Cool 20°C to 0°C in < 30 minutes	Heat 20°C to 120°C < 1hr
Unistat 405	-45 to +250	1.5	1.0	5 Litre	Cool 20°C to 0°C in < 20 minutes	Heat 20°C to 60°C < 25 minutes
				10 Litre	Cool 20°C to 0°C in < 35 minutes	Heat 20°C to 60°C < 70 minutes
Unistat 425	-40 to +250	2.0	2.5	5 Litre	Cool 20°C to -20°C in < 20 minutes	Heat 20°C to 180°C < 30 minutes
				20 Litre	Cool +60°C to 20°C in < 30 minutes	Heat 20°C to 60°C < 20 minutes
Unistat 510w	-40 to +250	6.0	5.3	20 Litre	Cool 20°C to -40°C in < 80 minutes	Heat -30°C to 20°C < 20 minutes
Unistat 610w	-60 to +200	6.0	7.0	20 Litre	Cool 180°C to 20°C in < 40 minutes	Heat 20°C to 180°C < 60 minutes
Unistat 825w	-60 to +200	3.0	2.4	10 Litre	Cool 20°C to -60°C in < 60 minutes	Heat 20°C to 60°C < 30 minutes
				10 Litre	Cool 20°C to -75°C in < 120 minutes	Heat 20°C to 180°C < 100 minutes

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. For comprehensive advice on thermoregulator selection please contact your local Radleys distributor.

Control Software - *automate your lab reactor*

Log and control multiple devices and sensors

Control and datalog

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

User friendly interface

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

Create simple or complex experimental recipes

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



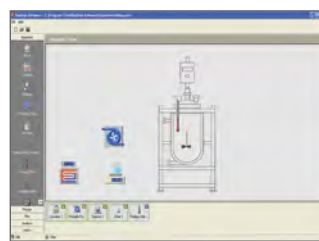
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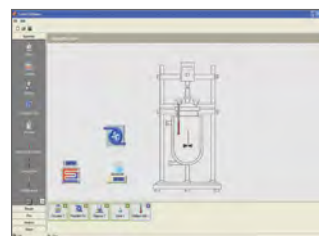
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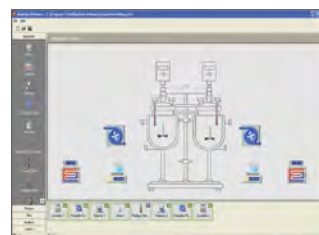
Control Software Kit



Reactor-Ready Pilot



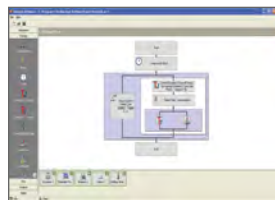
Reactor-Ready



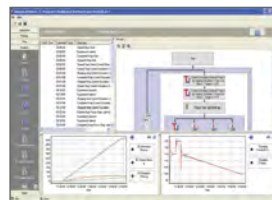
Reactor-Ready Duo



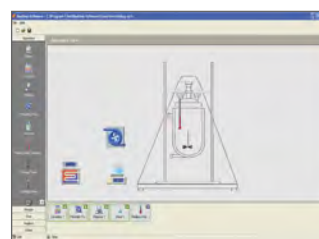
Integrate Apparatus



Create Recipe



Analyse Results



Lara CLR

Data Hub - *integrate RS232 devices*

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

Features

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

Data Hub Specifications

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



2 x Pt100 Temperature Ports

4 x RS232 Serial Ports



Pt100 and RS232 Ports



Power and Ethernet Connection

How to order Reactor-Ready Pilot

Order in six simple steps

1. Select the Reactor-Ready Pilot Core: RR210000.
2. Choose the lid you require.
3. Choose the Vessel Kit or Kits you require by selecting the vessel volume and style.
4. Select the overhead stirrer 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 Pilot Core System

RR210000

Reactor-Ready Pilot Core System includes:

- Base frame, support rods, vessel clamp, i-beam and stirrer support bosses.
- Vessel to manifold insulated hoses with quick-release connections.
- Lower inlet manifold with drain.
- Upper outlet manifold with vent.
- PTFE Stirrer guide.
- Stainless steel stirrer drive coupling.
- One aluminium vessel support collar.
- FEP flange O-ring and PTFE centering collar.



Important: Hoses to connect the Reactor-Ready Pilot framework to your thermoregulator are NOT included. You will require hoses with an M30x1.5 female connection or appropriate adapters. See below for hoses, adapters and suitable thermoregulators.

Glass Lids

- DN200 Glass Lids fit all Vessel sizes.
- Choice of 6 or 7 Rodaviss glass joints.
- Custom lid designs are available on request.
- See page 8 for full lid specifications.



RR236000	6 Neck Lid DN200 - 1xB19, 1xB24, 1xB29, 2xB34, 1xB45
RR236002	7 Neck Lid DN200 - 1xB19, 1xB24, 1xB29, 3xB34, 1xB45
RR236000/US	6 Neck Lid DN200 - 1xA19, 1xA24, 1xA29, 1xB34, 1xA34, 1xA45
RR236002/US	7 Neck Lid DN200 - 1xA19, 1xA24, 1xA29, 1xB34, 2xA34, 1xA45

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

Reaction Vessel Kits

- Kits include; process vessel, turbine stirrer paddle, PTFE Pt100 temp. probe with Lemo plug and PTFE temperature probe adapter.
- Choice of single or vacuum jacketed vessels.
- Custom vessel designs are available on request.



RR220005	5L Single Jacketed Pilot Process Vessel Kit
RR220015	10L Single Jacketed Pilot Process Vessel Kit
RR220025	15L Single Jacketed Pilot Process Vessel Kit
RR220035	20L Single Jacketed Pilot Process Vessel Kit

RR220010	5L Vacuum Jacketed Pilot Process Vessel Kit
RR220020	10L Vacuum Jacketed Pilot Process Vessel Kit
RR220030	15L Vacuum Jacketed Pilot Process Vessel Kit
RR220040	20L Vacuum Jacketed Pilot Process Vessel Kit

RS Overhead Stirrers

Please note that other overhead stirrer options are available on request, please contact Radleys for further information.



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

Thermoregulators and Accessories

Huber Thermoregulators (others available)

HB1000.0016.01	Unistat Tango Nuevo
HB1002.0018.01	Unistat 405
HB1005.0057.01	Unistat 425
HB1005.0061.01	Unistat 510w
HB1007.0031.01	Unistat 610w
HB1014.0051.01	Unistat 825
HB1014.0052.01	Unistat 825w



Important: For technical advice on selecting the thermoregulator, thermofluid or hoses for your application please contact our technical sales team on Tel: +44 1799 513320 or e-mail: sales@radleys.co.uk

Thermoregulator Hoses

M24 Insulated Hose with PTFE Inner (12mm ID x 37mm OD)

HB9325	M24x1.5 x 1m Insulated PTFE Hose	-60°C to +260°C
HB9326	M24x1.5 x 1.5m Insulated PTFE Hose	-60°C to +260°C
HB9327	M24x1.5 x 2m Insulated PTFE Hose	-60°C to +260°C
HB9328	M24x1.5 x 3m Insulated PTFE Hose	-60°C to +260°C

M30 Insulated Hose with PTFE Inner (20mm ID x 44mm OD)

HB9612	M30x1.5 x 1m Insulated PTFE Hose	-60°C to +260°C
HB9613	M30x1.5 x 1.5m Insulated PTFE Hose	-60°C to +260°C
HB9614	M30x1.5 x 2m Insulated PTFE Hose	-60°C to +260°C
HB9615	M30x1.5 x 3m Insulated PTFE Hose	-60°C to +260°C

M24 Insulated Hose with Metal Inner (12mm ID x 44mm OD)

HB9274	M24x1.5 x 1m Insulated Metal Hose	-100°C to +350°C
HB9275	M24x1.5 x 1.5m Insulated Metal Hose	-100°C to +350°C
HB9276	M24x1.5 x 2m Insulated Metal Hose	-100°C to +350°C
HB9277	M24x1.5 x 3m Insulated Metal Hose	-100°C to +350°C

Thermoregulator Hoses - continued

M30 Insulated Hose with Metal Inner (20mm ID x 56mm OD)

HB6426	M30x1.5 x 1m Insulated Metal Hose	-100°C to +350°C
HB6386	M30x1.5 x 1.5m Insulated Metal Hose	-100°C to +350°C
HB6427	M30x1.5 x 2m Insulated Metal Hose	-100°C to +350°C
HB6428	M30x1.5 x 3m Insulated Metal Hose	-100°C to +350°C

Thermoregulator Adapters and Thermofluid

M24 Adapters

HB9268	M24x1.5 Male to M30x1.5 Female Adapter
HB6723	M24x1.5 Female to M30x1.5 Male Adapter
HB9256	M24x1.5 90 degree Adapter
HB12634	M24x1.5 Nut
HB9471	M24x1.5 Hose Connector NW12
HB9236	M24x1.5 Isolating Ball Valve

M30 Adapters

HB6612	M30x1.5 Male to M38x1.5 Female Adapter
HB6984	M30x1.5 Female to M38x1.5 Male Adapter
HB6461	M30x1.5 90 degree Adapter
HB5992	M30x1.5 Nut
HB6451	M30x1.5 Isolating Ball Valve

Thermofluid

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

Reactor-Ready Pilot Accessories

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
RR139300	Large Double Coil Rodaviss Condenser 60mm B34 + GL18 + fittings
RR139302	Large Double Coil Rodaviss Condenser 85mm B34 + GL18 + fittings
RR139011	Right Angle Adapter B29 + GL14 + PTFE fittings
RR139012	Right Angle Adapter B34 + GL14 + PTFE fittings
RR139017	250ml Graduated Dropping Funnel Equalising Arm B24
RR139019	500ml Graduated Dropping Funnel Equalising Arm B24
RR139021	1000ml Graduated Dropping Funnel Equalising Arm B24
RR139304	2000ml Graduated Dropping Funnel Equalising Arm B29 6mm Bore
RR139308	Swan Neck Adapter Vertical B24 to Vertical B24
RR139310	Swan Neck Adapter Vertical B29 to Vertical B29
RR139312	Swan Neck Adapter Vertical B34 to Vertical B34
RR139079	PTFE Flexible Bellows B24
RR139081	PTFE Flexible Bellows B29
RR139083	PTFE Flexible Bellows B34
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
RR139378	Glass Cone Stopper B45
RR139034	Enlarging Adapter B19 to B24
RR139035	Enlarging Adapter B24 to B29
RR139036	Enlarging Adapter B19 to B29
RR139037	Enlarging Adapter B29 to B34
RR139038	Enlarging Adapter B19 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
RR139314	Oil Bubbler Type 1 B29 + GL14 + fittings
RR139053	Solid Additions Funnel B34 (with extended tube)
RR139316	Solid Additions Funnel B45 (with extended tube)
RR139057	Valved Right Angled Liquid Inlet Adapter B24 to GL14
RR139318	Valved Right Angled Liquid Inlet Adapter B29 to GL14
RR139320	Reflux Divider Head B34 + GL18 + fitting
RR139322	Reflux Divider Head B34 + GL18 + fitting + B14 temp probe port
RR239200	Pilot Reflux Divider Kit (see page 11)
RR239202	Pilot Reflux Divider with Vapour Temp Kit (see page 11)
RR139133	Pt100 PTFE Temp. Probe (Reflux Divider Head) + 2m Cable + Lemo
RR139135	PTFE Temperature Probe Adapter (B14 for Reflux Divider Head)
RR139063	PTFE Hose Adapter B19 to 12mm ID (NW12)
RR139065	PTFE Hose Adapter B24 to 15mm ID
RR139324	500ml Receiver Flask 3 x B24 Socket, + B24 Cone and Tap
RR139326	1000ml Receiver Flask 3 x B24 Socket, + B24 Cone and Tap
RR139328	2000ml Receiver Flask 3 x B24 Socket, + B24 Cone and Tap
RR139330	5000ml Receiver Flask 3 x B24 Socket, + B24 Cone and Tap
RR139085	Adapter Rodaviss B19 to GL25
RR139332	Adapter Rodaviss B24 to GL25
RR139334	Adapter Rodaviss B29 to GL25
RR139087	Adapter Rodaviss B34 to GL25
RR139089	Adapter Rodaviss B19 to GL14
RR139091	Adapter Rodaviss B24 to GL14
RR139336	Adapter Rodaviss B29 to GL14
RR139093	Adapter Rodaviss B19 to 2 x GL14
RR139095	Adapter Rodaviss B24 to 2 x GL14
RR139338	Adapter Rodaviss B29 to 2 x GL14
RR139340	Vertical Run-Off Adapter B24 to Plain Stem
RR139137	Run-Off Secondary Valve, B24 to Stopcock
RR139111	Screw Cap with Aperture GL14, pk 10
RR139113	Silicone Seal with PTFE Washer GL14, 6mm, pk 10
RR139115	Screw Cap GL14, with PTFE seal, pk 10
RR139119	Screw Cap with Aperture GL25, pk 10
RR139121	Silicone Seal with PTFE Washer GL25, 12mm, pk 10
RR139117	Screw Cap GL25, with PTFE seal, pk 10
RR139342	GL14 HT Compression Fitting for 4mm OD Tubing
RR139344	GL14 HT Compression Fitting for 6mm OD Tubing
RR139346	GL25 HT Compression Fitting for 8mm OD Tubing
RR139348	GL25 HT Compression Fitting for 10mm OD Tubing
RR139350	GL25 HT Compression Fitting for 12mm OD Tubing
RR139352	GL18 PTFE Hose Connector for 10mm ID Tubing
RR139354	PTFE Tubing 10mm ID x 12mm OD - 1m length

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

Reaction Vessel Support Collar

RR210018	Pilot Vessel Support Collar
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Important: One support collar is supplied with each Reactor-Ready Pilot Core. We recommend one support collar per vessel.

Jacketed and Vacuum Jacketed Reaction Vessels

RR235050	5L Single Jacketed Pilot Vessel
RR235100	10L Single Jacketed Pilot Vessel
RR235150	15L Single Jacketed Pilot Vessel
RR235200	20L Single Jacketed Pilot Vessel
RR235052	5L Vacuum Jacketed Pilot Vessel
RR235102	10L Vacuum Jacketed Pilot Vessel
RR235152	15L Vacuum Jacketed Pilot Vessel
RR235202	20L Vacuum Jacketed Pilot Vessel

PTFE Stirrer Shafts

RR258051	Anchor PTFE Stirrer Shaft - 5L Pilot Vessels
RR258052	Retreat Curve PTFE Stirrer Shaft - 5L Pilot Vessels
RR258053	Turbine PTFE Stirrer Shaft - 5L Pilot Vessels
RR258101	Anchor PTFE Stirrer Shaft - 10L Pilot Vessels
RR258102	Retreat Curve PTFE Stirrer Shaft - 10L Pilot Vessels
RR258103	Turbine PTFE Stirrer Shaft - 10L Pilot Vessels
RR258151	Anchor PTFE Stirrer Shaft - 15L Pilot Vessels
RR258152	Retreat Curve PTFE Stirrer Shaft - 15L Pilot Vessels
RR258153	Turbine PTFE Stirrer Shaft - 15L Pilot Vessels
RR258201	Anchor PTFE Stirrer Shaft - 20L Pilot Vessels
RR258202	Retreat Curve PTFE Stirrer Shaft - 20L Pilot Vessels
RR258203	Turbine PTFE Stirrer Shaft - 20L Pilot Vessels
RR258300	Adjustable PTFE 4 Blade 45 Angle Rotor 16mm OD 100mm Rotor
RR258302	Adjustable PTFE 2 Blade Vertical Rotor 16mm OD 100mm Rotor

PTFE Pt100 Temperature Probes and Adapters

RR145000	Pt100 PTFE Temp. Probe 9mm + Lemo Plug - 5L to 10L Vessels
RR146000	Pt100 PTFE Temp. Probe 9mm + Lemo Plug - 15L to 20L Vessels
RR140015	PTFE Temperature Probe Adapter - 9mm

PTFE Baffles + PTFE Probe Baffles

RR257000	PTFE Baffle, 16mm OD Shaft, 35mm x 600mm long
RR257002	PTFE Baffle, 16mm OD Shaft, 35mm x 700mm long
RR257004	Pt100 PTFE Baffle Probe + Lemo, 16mm OD Shaft, 35mm x 600mm long
RR257006	Pt100 PTFE Baffle Probe + Lemo, 16mm OD Shaft, 35mm x 700mm long
RR257008	B24 to 16mm PTFE Compression Fitting
RR257010	B29 to 16mm PTFE Compression Fitting
RR257012	B34 to 16mm PTFE Compression Fitting

Clamps, Bosses and Drip Trays

RR139360	Pilot Boss Head - 22-35mm, 8-12mm
RR139362	Rod Extender - 10mm, 100mm long, for 10mm rods
RR139364	Rubber Belt Clamp - 10mm rod, 60-170mm
RR139366	Chain Clamp - 10mm rod, 40-120mm
RR139368	Chain Clamp - 10mm rod, 80-150mm
RR139370	Chain Clamp - 10mm rod, 100-170mm
RR139372	4-Prong Large Clamp - 10mm rod, 30-80mm
RR139374	Universal Clamp Cork Jaws - 10mm rod, 0-80mm
RR139376	Lower Support Ring - 10mm rod, 76mm ID
RR210062	Drip Tray Polypropylene 7L Capacity
RR210064	Drip Tray Polypropylene 22L Capacity
RR210066	Drip Tray Polypropylene 45L Capacity

Pilot Core Height Reduction Kits

RR210070	Reactor-Ready Pilot Core - 200mm Height Reduction Kit
RR210072	Reactor-Ready Pilot Core - 300mm Height Reduction Kit

Important: Designed to reduce the overall height of the Pilot Core by 200 or 300mm.

General Maintenance Accessories

RRR210100	Reactor-Ready Pilot Maintenance Kit (includes all items listed below) <i>Does not include Chemraz O-rings or 25mm Piston</i>
RR121027	Oil Wipe for Support Rods, pk 10
RR121136	Stirrer Guide Bearing Seal B34, 16mm
RR121138	Stirrer Guide Ferrule and Shaft Seal B34, 16mm
RR121071	23mm Viton O-Rings for Quick Release Hose Coupling, pk 2
RR210050	34mm Viton O-Rings for Quick Release Hose Coupling - NW20, pk 2
RR210022	FEP Encapsulated Silicone Vessel O-ring - 200mm
RR166104	Replacement 25mm Piston Top O-Ring, pk 2
RR166106	Replacement 25mm Piston Middle O-Ring

Important: For temperatures above 150°C we recommend the use of high performance Chemraz piston O-rings to prevent possible weeping. Chemraz O-rings are suitable for temperatures from 0°C to +230°C and should not be used below 0°C.

RR210074	Replacement 25mm Piston Top O-Ring Chemraz (0°C to 230°C)
RR166070	Piston 25mm for Single and Vacuum Jacketed Vessel

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Carousel 6 Plus Reaction Station

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RS Overhead Stirrers

Choice of four models; offering the best mixing results, even for challenging applications.



Carousel Stirring Hotplates

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