

## Instructions

# Cooled Carousel 6 Plus™ Reaction Station

These instructions should be read in conjunction with the Carousel 6 Plus and Stirring Hotplate Instructions.

Your Local Distributor



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# 1. Introduction

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**Thank you for purchasing your Cooled Carousel 6 Plus Reaction Station. Please read this Instruction Manual thoroughly before operating your unit.**

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

## Features...

- Simultaneously performs up to six cooled and stirred reactions to  $-78^{\circ}\text{C}$ .
- 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  $-78^{\circ}\text{C}$ .
- Insulated foam core maintains low temperatures for long periods, whilst protecting the stirrer from freezing.
- Insulation also reduces condensation and ice formation on outer surfaces of reservoir.
- HDPE lid keeps your reaction cooler for longer, minimises ice formation on your flasks (maintaining visibility of the contents) and prevents spitting from the cooling mixture.
- Round design makes all reaction flasks visible and allows easy addition of reagents and solvents, with no need to lean into the fumehood.



## Whats NEW...

- Easy-on PTFE caps feature a 'quick-thread' for a gas tight seal to flasks.
- Easy to clean contoured surface.
- Exclusive wide neck flasks with quick coupling for improved sealing and ease of use.

## 2. Warranty

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The Cooled Carousel 6 Plus Reaction Station includes one year full parts and labour warranty from date of original purchase.


Warranty will only be valid if a completed Warranty Fax Back is returned within 1 month of date of purchase (see last page). In the event of product failure please contact your local distributor.

Please do not return any goods without prior agreement.

## 3. Safety Information

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The following symbols are intended to assist the user in the safe and efficient operation of the Cooled Carousel 6 Plus Reaction Station.

	<p><b>Warning</b> Applies when there is a possibility of personal injury.</p>
<p>Important, Important, Important, Important, Important, Important, Important, Important, Important, Important, Important, Important, Important, Important,</p>	<p><b>Important Note</b> Alerts the user to important facts.</p>

## 4. Important WARNINGS

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- Please read these instructions completely before using your Cooled Carousel 6 Plus Reaction Station.
- The Cooled Carousel is NOT suitable for heated reactions.
- Operate only in a fumehood with protective safety sash.
- The Carousel Reaction Flasks are not designed for pressurised reactions. DO NOT PRESSURISE ABOVE 1psi.
- Reactor Head - Chemical Resistance - the aluminium Carousel reactor head is resistant to the majority of solvents and splash resistant to dilute acids and alkalis at room temperature. Extended exposure to acids or alkalis will attack the surface of the Carousel. The stronger the concentration and the longer the exposure time the more chance and intensity of any attack. It is important to clean off any residual chemical spills immediately after they occur.
- Cooling Reservoir - Chemical Resistance - The cooling reservoir is manufactured from a HDPE polymer which is compatible with the freezing mixtures listed in Section 11. Cooling Mixture Appendix on page 18 of this manual.
- Ensure that the heating control on the stirring hotplate is switched off and that the hotplate is cool before using the Cooled Carousel.
- Cooling solvents such as acetone are extremely flammable. Always follow appropriate safety instructions and chemical handling procedures.

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### Important Note

The Cooled Carousel should only be operated by trained and competent personnel. As with all chemistries, a full risk assessment should be performed prior to starting an experiment, and care should be taken to monitor your reactions at all stages. The Carousel should not be left unattended unless in a supervised area.

# 5. Product Component Guide



Reactor Head

Hole for temperature probe

Central Gas Inlet

Easy-On PTFE Caps & Septa



Connector Pins



Stirring Bars



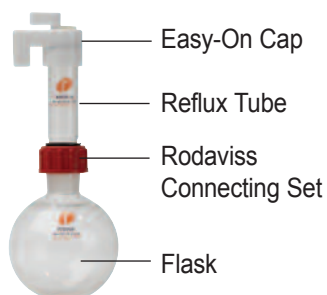
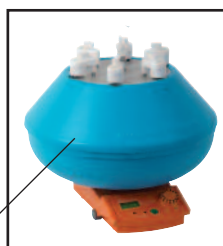
HDPE Reservoir



HDPE Stand

Stirring Hotplate

HDPE Lid



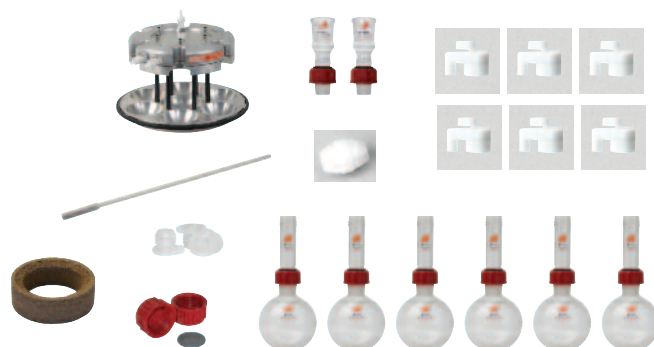
## 6. Products & Accessories

### Heated System - Basic

180°C

## System 34

- RR99943 Carousel 6 Plus System  
 1 x RR99916 Carousel 6 Plus Reaction Station  
 1 x RR91070 Easy-On PTFE Cap, pk 6  
 1 x RR98076 Silicone Septa for PTFE Caps, pk 100  
 1 x RR98094 PTFE Magnetic Stirring Bar Retriever 350mm  
 1 x RR99917 250ml Reaction Flask + Reflux Tube + Connecting Set, pk 6  
 1 x RR99043 B24/29 Rodaviss Sealing Cap, pk 10  
 1 x RR99046 Rotary Evaporator Adapters Ordinary B29 Socket to B24 Cone, pk 2  
 1 x RR99061 Reaction Flask Support Ring, pk 6  
 1 x RR99064 Elliptical Stirring Bar 25mm RE, pk 10  
 1 x RR99067 Tubing for Inert Gas or Reflux Cooling 2 metres



### Heated System - Basic + Hotplate

180°C

## System 33

- RR99942 Carousel 6 Plus System  
 1 x RR99916 Carousel 6 Plus Reaction Station  
 1 x RR91070 Easy-On PTFE Cap, pk 6  
 1 x RR91202 Carousel Tech Stirring Hotplate 230v UK Plug  
 1 x RR91210 Carousel Temperature Controller  
 1 x RR98076 Silicone Septa for PTFE Caps, pk 100  
 1 x RR98094 PTFE Magnetic Stirring Bar Retriever 350mm  
 1 x RR99917 250ml Reaction Flask + Reflux Tube + Connecting Set, pk 6  
 1 x RR99043 B24/29 Rodaviss Sealing Cap, pk 10  
 1 x RR99046 Rotary Evaporator Adapters Ordinary B29 Socket to B24 Cone, pk 2  
 1 x RR99061 Reaction Flask Support Ring, pk 6  
 1 x RR99064 Elliptical Stirring Bar 25mm RE, pk 10  
 1 x RR99067 Tubing for Inert Gas or Reflux Cooling 2 metres

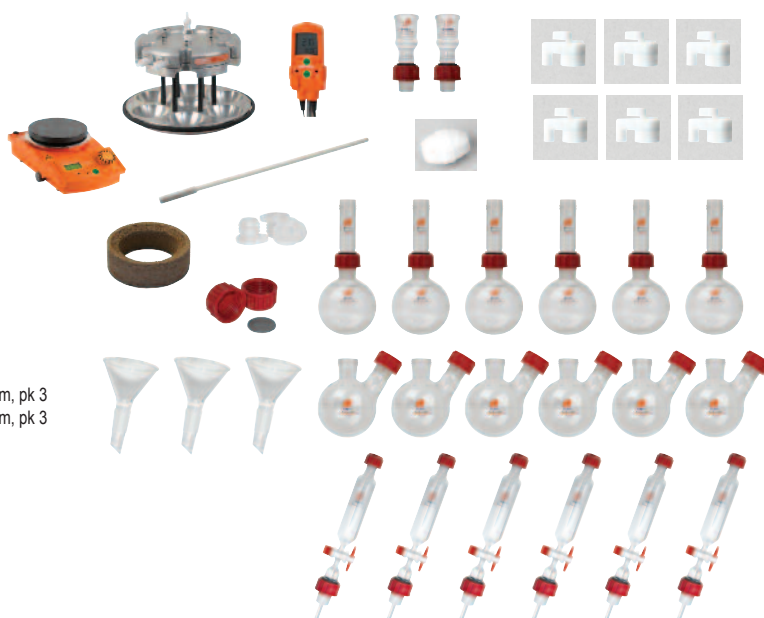


### Heated System - Additions

180°C

## System 35

- RR99944 Carousel 6 Plus System  
 1 x RR99916 Carousel 6 Plus Reaction Station  
 1 x RR91070 Easy-On PTFE Cap, pk 6  
 1 x RR91202 Carousel Tech Stirring Hotplate 230v UK Plug  
 1 x RR91210 Carousel Temperature Controller  
 1 x RR98076 Silicone Septa for PTFE Caps, pk 100  
 1 x RR98094 PTFE Magnetic Stirring Bar Retriever 350mm  
 1 x RR99917 250ml Reaction Flask + Reflux Tube + Connecting Set, pk 6  
 1 x RR99043 B24/29 Rodaviss Sealing Cap, pk 10  
 1 x RR99046 Rotary Evaporator Adapters Ordinary B29 Socket to B24 Cone, pk 2  
 1 x RR99061 Reaction Flask Support Ring, pk 6  
 1 x RR99064 Elliptical Stirring Bar 25mm RE, pk 10  
 1 x RR99067 Tubing for Inert Gas or Reflux Cooling 2 metres  
 1 x RR99077 B24/29 250ml Reaction Flasks with Sidearm + Septa Port, pk 6  
 1 x RR99078 B24/29 Liquid Additions Dropping Funnel with Pressure Equalising Arm, pk 3  
 1 x RR99078 B24/29 Liquid Additions Dropping Funnel with Pressure Equalising Arm, pk 3  
 1 x RR99079 B24/29 Solid Additions Funnel, pk 3  
 1 x RR99082 PTFE/Silicone Septa 29mm for B24/29, pk 50



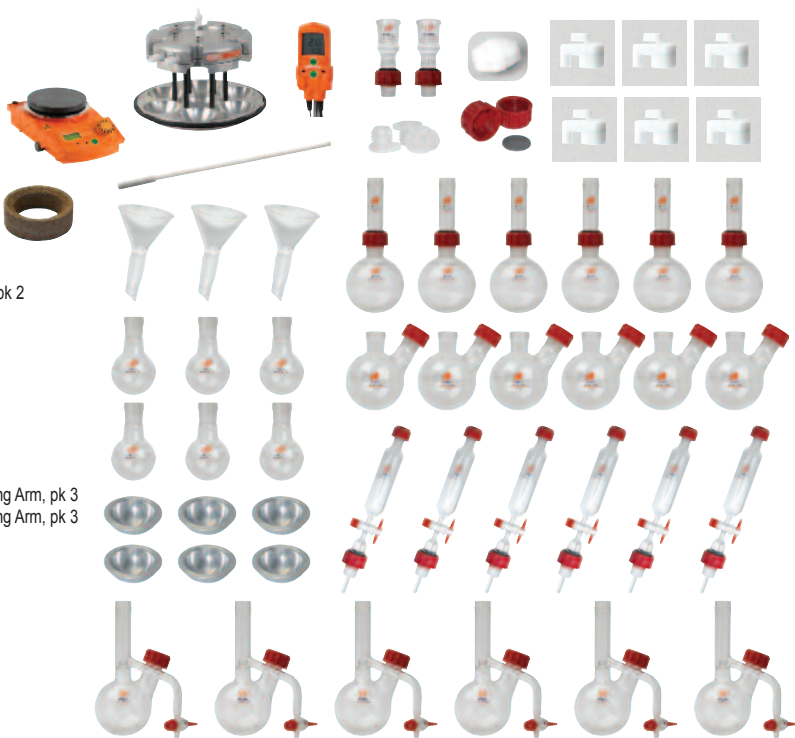
## 6. Products & Accessories

### Heated System - Comprehensive

180°C

System 36  
RR99945

- Carousel 6 Plus System
- 1 x RR99916 Carousel 6 Plus Reaction Station
  - 1 x RR91070 Easy-On PTFE Cap, pk 6
  - 1 x RR91202 Carousel Tech Stirring Hotplate 230v UK Plug
  - 1 x RR91210 Carousel Temperature Controller
  - 1 x RR98076 Silicone Septa for PTFE Caps, pk 100
  - 1 x RR98094 PTFE Magnetic Stirring Bar Retriever 350mm
  - 1 x RR99917 250ml Reaction Flask + Reflux Tube + Connecting Set, pk 6
  - 1 x RR99043 B24/29 Rodaviss Sealing Cap, pk 10
  - 1 x RR99046 Rotary Evaporator Adapters Ordinary B29 Socket to B24 Cone, pk 2
  - 1 x RR99054 100ml Reaction Flask, pk 6
  - 1 x RR99920 250ml Azeotropic Reaction Flask, pk 3
  - 1 x RR99920 250ml Azeotropic Reaction Flask, pk 3
  - 1 x RR99058 Aluminium Insert for 100ml Reaction Flask, pk 6
  - 1 x RR99061 Reaction Flask Support Ring, pk 6
  - 1 x RR99064 Elliptical Stirring Bar 25mm RE, pk 10
  - 1 x RR99067 Tubing for Inert Gas or Reflux Cooling 2 metres
  - 1 x RR99077 B24/29 250ml Reaction Flasks with Sidearm + Septa Port, pk 6
  - 1 x RR99078 B24/29 Liquid Additions Dropping Funnel with Pressure Equalising Arm, pk 3
  - 1 x RR99078 B24/29 Liquid Additions Dropping Funnel with Pressure Equalising Arm, pk 3
  - 1 x RR99079 B24/29 Solid Additions Funnel, pk 3
  - 1 x RR99082 PTFE/Silicone Septa 29mm for B24/29, pk 50



### Cooled System - Upgrade

-78°C

System 38  
RR99949

- Cooled Carousel 6 Plus System
- 1 x RR99947 Cooled Carousel 6 Plus (Reservoir, Head, Stand + Cover)
  - 1 x RR98024 Protective Cold Temperature Gloves
  - 1 x RR98076 Silicone Septa for PTFE Caps, pk 100
  - 1 x RR99067 Tubing for Inert Gas or Reflux Cooling 2 metres
  - 1 x RR99905 Digital Thermometer (-250°C to +400°C) + 200mm Probe
  - 1 x RR99908 Dry Ice Scoop
  - 1 x RR99909 Cold Temp. Apron 1060mm long Waterproof
  - 1 x RR99910 Protective Face Shield



This system does not include reaction flasks, stirring hotplate etc and is intended for those users who already have a heated Carousel 6 Plus.

### Cooled System - Comprehensive

-78°C

System 39  
RR99950

- Cooled Carousel 6 Plus System
- 1 x RR99947 Cooled Carousel 6 Plus (Reservoir, Head, Stand + Cover)
  - 1 x RR98024 Protective Cold Temperature Gloves
  - 1 x RR91070 Easy-On PTFE Cap, pk 6
  - 1 x RR91202 Carousel Tech Stirring Hotplate 230v UK Plug
  - 1 x RR98076 Silicone Septa for PTFE Caps, pk 100
  - 1 x RR98094 PTFE Magnetic Stirring Bar Retriever 350mm
  - 1 x RR99917 250ml Reaction Flask + Reflux Tube + Connecting Set, pk 6
  - 1 x RR99043 B24/29 Rodaviss Sealing Cap, pk 10
  - 1 x RR99046 Rotary Evaporator Adapters Ordinary B29 Socket to B24 Cone, pk 2
  - 1 x RR99054 100ml Reaction Flask, pk 6
  - 1 x RR99061 Reaction Flask Support Ring, pk 6
  - 1 x RR99064 Elliptical Stirring Bar 25mm RE, pk 10
  - 1 x RR99067 Tubing for Inert Gas or Reflux Cooling 2 metres
  - 1 x RR99077 B24/29 250ml Reaction Flasks with Sidearm + Septa Port, pk 6
  - 1 x RR99078 B24/29 Liquid Additions Dropping Funnel with Pressure Equalising Arm, pk 3
  - 1 x RR99078 B24/29 Liquid Additions Dropping Funnel with Pressure Equalising Arm, pk 3
  - 1 x RR99079 B24/29 Solid Additions Funnel
  - 1 x RR99905 Digital Thermometer (-250°C to +400°C) + 200mm Probe
  - 1 x RR99908 Dry Ice Scoop
  - 1 x RR99909 Cold Temp. Apron 1060mm long Waterproof
  - 1 x RR99910 Protective Face Shield



## 6. Products & Accessories - Continued

### Carousel 6 Plus Reaction Station

#### Carousel 6 Plus

RR99916 Carousel 6 Plus Reaction Station

#### Carousel 6 Plus Systems

RR99942 Carousel 6 Plus System 33 - Heated System - Basic + Hotplate  
 RR99943 Carousel 6 Plus System 34 - Heated System - Basic  
 RR99944 Carousel 6 Plus System 35 - Heated System - Additions  
 RR99945 Carousel 6 Plus System 36 - Heated System - Comprehensive

### Glassware

#### Standard Flasks & Reflux Tubes

RR99151 5ml Reaction Flask with B14/23 Neck, pk 6  
 RR99148 10ml Reaction Flask with B14/23 Neck, pk 6  
 RR99923 B14/23 Reflux Tube + Connecting Set, pk 6  
 RR99145 25ml Reaction Flask, pk 6  
 RR99070 50ml Reaction Flask, pk 6  
 RR99054 100ml Reaction Flask, pk 6  
 RR99052 170ml Reaction Flask, pk 6  
 RR99041 250ml Reaction Flask, pk 6  
 RR99917 250ml Reaction Flask + Reflux Tube + Connecting Set, pk 6  
 RR99918 B24/29 Reflux Tube + Connecting Set, pk 6  
 RR99919 250ml Long Neck Reaction Flask, pk 6

#### Standard Flasks with Sidearms

RR99071 50ml Reaction Flask with B14/23 Sidearm + Septa Port, pk 6  
 RR99074 100ml Reaction Flask with B14/23 Sidearm + Septa Port, pk 6  
 RR99077 250ml Reaction Flask with B24/29 Sidearm + Septa Port, pk 6  
 RR99047 250ml Reaction Flask with B14/23 Sidearm + Septa Port, pk 6  
 RR99087 250ml Reaction Flask with 2x B14/23 Sidearms + Septa Port, pk 6  
 RR99088 250ml Reaction Flask with 2x B24/29 Sidearms + Septa Port, pk 6  
 RR99089 250ml Reaction Flask with 1x B14/23 + 1x B24/29 Sidearm + Septa Port, pk 6

#### Wide Neck Flasks with Coupling

RR99924 Wide Neck Reflux Tube + Coupling  
 RR99925 Coupling for Wide Neck Flasks  
 RR99940 PTFE Wide Neck Support Collar  
 RR99941 Nitrile O-Ring for PTFE Wide Neck Support Collar  
 RR99926 50ml Wide Neck Flask  
 RR99928 100ml Wide Neck Flask  
 RR99933 250ml Wide Neck Flask

#### Wide Neck Flasks with Sidearms

RR99927 50ml Wide Neck Flask with B14/23 Sidearm + Septa Port  
 RR99929 100ml Wide Neck Flask with B14/23 Sidearm + Septa Port  
 RR99930 100ml Wide Neck Flask with 2x B14/23 Sidearms + Septa Port  
 RR99934 250ml Wide Neck Flask with B24/29 Sidearm + Septa Port  
 RR99935 250ml Wide Neck Flask with 2x B24/29 Sidearms + Septa Port

#### Wide Neck Flasks with Baffles & Sidearms

RR99931 100ml Baffled Wide Neck Flask with B14/23 Sidearm + Septa Port  
 RR99932 100ml Baffled Wide Neck Flask with 2x B14/23 Sidearms + Septa Port  
 RR99936 250ml Baffled Wide Neck Flask with B24/29 Sidearm + Septa Port  
 RR99937 250ml Baffled Wide Neck Flask with 2x B24/29 Sidearms + Septa Port

#### Azeotropic Glassware

RR99922 100ml Azeotropic Reaction Flask, pk 3  
 RR99920 250ml Azeotropic Reaction Flask, pk 3  
 RR99939 100ml Tornado Azeotropic Reaction Flask, pk 3  
 RR99938 250ml Tornado Azeotropic Reaction Flask, pk 3

#### Liquid & Solid Addition Funnels

RR99049 B14/23 Solid Additions Funnel, pk 3  
 RR99079 B24/29 Solid Additions Funnel, pk 3  
 RR99048 B14/23 Liquid Additions Dropping Funnel + Pressure Equalising Arm, pk 3  
 RR99078 B24/29 Liquid Additions Dropping Funnel + Pressure Equalising Arm, pk 3

#### Evaporation Adapters, Splash Heads & Evaporation Flasks

RR99045 Rotary Evaporator Adapters Rodaviss B29 Socket to B24 Cone, pk 2  
 RR99046 Rotary Evaporator Adapters Ordinary B29 Socket to B24 Cone, pk 2  
 RR99055 Rotary Evaporator Adapters USA 24/40 Socket to B24 Cone, pk 2  
 RR99083 Splash Head Rodaviss B29 Socket to B24 Cone  
 RR99084 Splash Head Ordinary B29 Socket to B24 Cone  
 RR99085 Splash Head USA 24/40 Socket to B24 Cone  
 RR99053 250ml EZ-2/HT Evaporation Flask (Compatible with Genevac Evaporators), pk 4

*Flasks are NOT supplied with reflux tubes or PTFE caps, these must be purchased separately.*

### Carousel 6 Plus Accessories

#### Aluminium Inserts

RR99142 Aluminium Insert for 5ml Reaction Flask, pk 6  
 RR99141 Aluminium Insert for 10ml Reaction Flask, pk 6  
 RR99140 Aluminium Insert for 25ml Reaction Flask, pk 6  
 RR99060 Aluminium Insert for 50ml Reaction Flask, pk 6  
 RR99058 Aluminium Insert for 100ml Reaction Flask, pk 6  
 RR99057 Aluminium Insert for 170ml Reaction Flask, pk 6

#### PTFE Magnetic Stirring Bars

RR98075 Cross Shape Stirring Bar 10mm, pk 40  
 RR98091 Cross Shape Stirring Bar 16.5mm RE, pk 20  
 RR98096 Elliptical Stirring Bar 10mm RE, pk 40  
 RR98097 Elliptical Stirring Bar 15mm RE, pk 20  
 RR99064 Elliptical Stirring Bar 25mm RE, pk 10  
 RR98070 Octagonal Stirring Bar 13mm, pk 20  
 RR98071 Pivot Ring Stirring Bar 12 x 6mm, pk 40  
 RR98095 PTFE Magnetic Stirring Bar Evaluation Kit, pk 30  
 RR98094 PTFE Magnetic Stirring Bar Retriever 350mm  
 RR98114 Magnetic Stirring Bar Restrainer

#### PTFE Caps & Accessories

RR91070 Easy-On PTFE Cap, pk 6  
 RR91072 Easy-On PTFE Storage Cap, pk 6  
 RR98076 Silicone Septa for PTFE Caps, pk 100  
 RR98176 Viton Septa for PTFE Caps, pk 100  
 RR98060 O-Rings for Caps - Nitrile 24mm, pk 100  
 RR98160 O-Rings for Caps - Viton 24mm, pk 100

#### Replacement O-Rings & Quick Release Couplings

RR91060 Nitrile O-Rings 4mm Gas Outlet - Bottom, pk 50  
 RR91061 Nitrile O-Rings 3mm Gas Outlet - Top, pk 50  
 RR91062 Viton O-Rings 4mm Gas Outlet - Bottom, pk 50  
 RR91063 Viton O-Rings 3mm Gas Outlet - Top, pk 50  
 RR91065 Quick Release Male Body Coupling No Shut-off, pk 2  
 RR91066 Quick Release Barbed Coupling No Shut-off  
 RR99062 Quick Release Barbed Coupling + Shut-off, pk 2  
 RR99063 90° Elbow Quick Release Barbed Coupling + Shut-off, pk 2  
 RR99065 Quick Release Male Body Coupling + Shut-off, pk 2

#### Rodaviss Caps & Connecting Sets

RR99051 B14/23 Rodaviss Sealing Cap, pk 10  
 RR99043 B24/29 Rodaviss Sealing Cap, pk 10  
 RR99955 B14/23 Rodaviss Connecting Set, pk 10  
 RR99044 B24/29 Rodaviss Connecting Set, pk 10  
 RR99080 PTFE/Silicone Septa 20mm - B14/23, pk 50  
 RR99081 PTFE/Silicone Septa 24.5mm - B19/26, pk 50  
 RR99082 PTFE/Silicone Septa 29mm - B24/29, pk 50  
 RR99068 B14/23 Rodaviss Connecting Cap, pk 10  
 RR99090 B24/29 Rodaviss Connecting Cap, pk 10

#### Other Accessories

RR98906 Black Lab Marker, pk 10  
 RR99061 Reaction Flask Support Ring, pk 6  
 RR99067 Tubing for Inert Gas or Reflux Cooling 2 metres



## 6. Products & Accessories - Continued

### Cooled Carousel 6 Plus Reaction Station

#### Cooled Carousel 6 Plus

RR99947 Cooled Carousel 6 Plus (Reservoir, Head, Stand + Cover)

#### Cooled Carousel 6 Plus Systems

RR99949 Cooled Carousel 6 Plus System 38 - Cooled System - Upgrade  
RR99950 Cooled Carousel 6 Plus System 39 - Cooled System - Comprehensive

#### Cooled Carousel 6 Plus Components

RR99501 Cooled Carousel 6 Plus Cooling Reservoir  
RR99948 Cooled Carousel 6 Plus Head  
RR99503 Cooled Carousel 6 Plus Stand  
RR99515 Cooled Carousel 6 Plus Cover (with gas connectors)

#### Cooled Carousel 6 Plus Accessories

RR99905 Digital Thermometer (-250°C to +400°C) + 200mm Probe  
RR99906 Digital Thermometer (-250°C to +400°C)  
RR99907 200mm Temperature Probe  
RR99908 Dry Ice Scoop  
RR99909 Cold Temperature Apron 1060mm long, Waterproof  
RR99910 Protective Face Shield  
RR98024 Protective Cold Temperature Gloves  
RR71505 Cooling Protection Kit  
1 x RR99909 Cold Temperature Apron 1060mm long, Waterproof  
1 x RR99910 Protective Face Shield  
1 x RR98024 Protective Cold Temperature Gloves

### Tornado Plus Overhead Stirring System

#### Tornado Plus

RR99951 Tornado Plus Overhead Stirring System  
RR99230 Universal Support Stand  
RR99237 Carousel Temperature Controller with extended 345mm Probe  
RR71127 Temp Sensor Support Rod (13mm x 500mm)  
RR71120 Support Rod Hotplate Adapter (extension plate)

#### PTFE Stirring Paddles

RR99240 Centrifugal PTFE Stirrer Paddle, pk 6  
RR99241 Centrifugal PTFE Stirrer Paddle, pk 1  
RR99244 Anchor PTFE Stirrer Paddle for 100ml Flasks, pk 6  
RR99245 Anchor PTFE Stirrer Paddle for 100ml Flasks, pk 1  
RR99248 Anchor PTFE Stirrer Paddle for 250ml Flasks, pk 6  
RR99249 Anchor PTFE Stirrer Paddle for 250ml Flasks, pk 1  
RR99251 Propellor PTFE Stirrer Paddle, pk 6  
RR99252 Propellor PTFE Stirrer Paddle, pk 1

#### 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  
RR91428 Remote Control for RS50 Control  
RR91430 RS232 Interface Cable Stirrer-PC

#### Spare Parts

RR99952 Quick-Thread Stirrer Guide Assembly  
RR99953 Replacement Tubing for RR99952 110mm (Stirrer Guide to gas manifold)

Please contact Radleys for details of replacement parts for the Stirrer Guide and Tornado System.

### Storm & Breeze Heating/Cooling Work Stations

#### Storm & Breeze Work Stations

RR96200 Storm Work Station + Carousel 6 PTFE Insulating Plates (M24 hose connections)  
RR96210 Breeze Work Station + Integral Stand (M16 hose connections)  
RR96220 PTFE Insulating Plates for Carousel 6 Plus

#### Insulated Hoses

HB6084 Insulated Hose - 100cm long, with M16 thread  
HB6085 Insulated Hose - 150cm long, with M16 thread  
HB6136 Insulated Hose - 200cm long, with M16 thread  
HB6255 Insulated Hose - 300cm long, with M16 thread  
  
HB6784 Insulated Hose - 100cm long, with M24 thread  
HB6785 Insulated Hose - 150cm long, with M24 thread  
HB6786 Insulated Hose - 200cm long, with M24 thread  
HB6787 Insulated Hose - 300cm long, with M24 thread

#### M16 Hose Adapters & Valves

HB6945 M16 Female to M24 Male Adapter  
HB6431 M16 Female to M30 Male Adapter  
HB6195 M16 90 Degree Adapter  
HB6091 M16 Ball Valve  
RR96316 M16 Thread Protection Cap, pk 10

#### M24 Hose Adapters & Valves

HB6724 M24 Female to M16 Male Adapter  
HB6723 M24 Female to M30 Male Adapter  
HB9256 M24 90 Degree Adapter  
HB9236 M24 Ball Valve  
RR96336 M24 Thread Protection Cap, pk 10

#### M30 Hose Adapters & Valves

HB6454 M30 Female to M16 Male Adapter  
HB9268 M30 Female to M24 Male Adapter  
HB6461 M30 90 Degree Adapter  
HB6451 M30 Ball Valve  
RR96348 M30 Thread Protection Cap, pk 10

#### Thermo fluids

HB6164 Silicone Oil -40°C to +165°C - 10 litres  
HB6162 Silicone Oil -20°C to +235°C - 10 litres  
HB6479 DWTherm -90°C to +200°C - 10 litres

### Stirring Hotplates

#### Tech Stirring Hotplates

RR91202 Carousel Tech Stirring Hotplate 230v UK Plug  
RR91202/EURO Carousel Tech Stirring Hotplate 230v Euro Plug  
RR91202/JAP Carousel Tech Stirring Hotplate 110v Japanese Plug  
RR91202/SWISS Carousel Tech Stirring Hotplate 240v Swiss Plug  
RR91202/USA Carousel Tech Stirring Hotplate 115v US Plug

#### Advanced Stirring Hotplates

RR91204 Carousel Advanced Stirring Hotplate 230v UK Plug  
RR91204/EURO Carousel Advanced Stirring Hotplate 230v Euro Plug  
RR91204/JAP Carousel Advanced Stirring Hotplate 100V Japanese Plug  
RR91204/SWISS Carousel Advanced Stirring Hotplate 230v Swiss Plug  
RR91204/USA Carousel Advanced Stirring Hotplate 115V US Plug

Other Stirring Hotplate models are available on request...

#### Temperature Controllers & Sensors

RR91210 Carousel Temperature Controller  
Includes RRT1125 Temp Sensor Support Rod and RR71120 Support Rod Hotplate Adapter  
RR91226 Pt1000 S/S Sensor for Carousel Advanced Stirring Hotplate  
RR91227 Pt1000 Glass Coated Sensor for Carousel Advanced Stirring Hotplate  
RR91228 Temperature Sensor Holder  
RR91229 Temp Sensor Support Rod (13mm x 425mm)  
RR71127 Temp Sensor Support Rod (13mm x 500mm)  
RR71125 Temp Sensor Support Rod (13mm x 340mm)  
RR71120 Support Rod Hotplate Adapter (extension plate)  
RR91234 RS232 Interface Cable - 15 Pin to 9 Pin

## 7. Glassware

### 7.1 Standard Flasks...

- Constructed of heavy duty, borosilicate glass.
- Choice of sizes: 5ml, 10ml, 25ml, 50ml, 100ml, 170ml and 250ml.
- Precision engineered round bottom design ensures an excellent fit with the Carousel's wells, maximising heat transfer.
- Flasks feature a B24/B29 Rodaviss joint for connection to the detachable Reflux Tube.
- The 5ml and 10ml flasks feature a B14/23 Rodaviss joint.
- Reflux Tubes feature a quick-thread, which when combined with PTFE Easy-On Cap, give a gas tight seal up to 1psi.
- Optional single piece 250ml Long Neck design.
- Compatible with magnetic stirring bars and the centrifugal stirrer paddles (Tornado).
- Flasks are NOT supplied with reflux tubes or PTFE caps, which must be ordered separately.



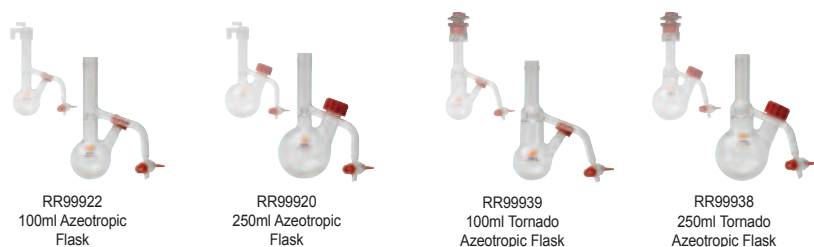
### 7.2 Standard Flasks with Sidearms...

- Sidearm flasks have all the features of the standard flasks with the addition of either one or two sidearms.
- Flasks are available with B14/23 and B24/29 sidearm options and include Rodaviss caps and sealing septa.
- Sidearms are compatible with Dropping Funnels and Solid Addition Funnels.



### 7.3 Azeotropic Flasks (Dean & Stark)...

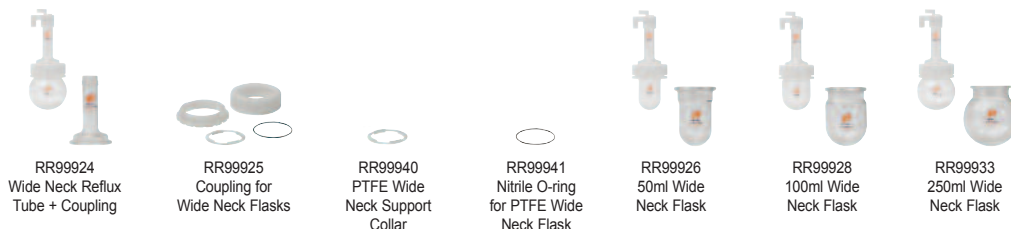
- Unique single piece flasks fit directly into the Carousel 6 Plus, allowing chemists to perform up to six Azeotropic processes in parallel.
- Choice of sizes: 100ml and 250ml.
- Special Tornado version with wider neck is designed to accept centrifugal stirring paddle.
- Flasks feature a replaceable PTFE stopcock for removal of the aqueous phase.
- Feature B14/23 or B24/29 sidearms.
- Sidearms are compatible with Dropping Funnels and Solid Addition Funnels.



## 7. Glassware - Continued

### 7.4 Wide Neck flasks with quick coupling...

- Wide neck flasks allow easier removal of viscous or solid samples and facilitate the use of the anchor and propeller style PTFE stirrer blade options (Tornado).
- These unique vessels feature a 50mm ID flat flange, which combines with a Nitrile O-ring and our unique self centering PTFE collar to offer a leak-tight seal between the glass flask and wide neck reflux tube.
- The two flanges are compressed together using a two part threaded polymer coupling, which both holds the components rigid and offers an excellent gas tight seal.



RR99924  
Wide Neck Reflux  
Tube + Coupling

RR99925  
Coupling for  
Wide Neck Flasks

RR99940  
PTFE Wide  
Neck Support  
Collar

RR99941  
Nitrile O-ring  
for PTFE Wide  
Neck Flask

RR99926  
50ml Wide  
Neck Flask

RR99928  
100ml Wide  
Neck Flask

RR99933  
250ml Wide  
Neck Flask

### 7.5 Wide Neck flasks with Sidearms...

- Wide neck sidearm flasks have all the features of the wide neck flasks with either one or two sidearms. Ideal for attaching dropping funnels or powder funnels.



RR99927  
50ml Wide Neck Flask  
with B14/23 Sidearm

RR99929  
100ml Wide Neck Flask  
with B14/23 Sidearm

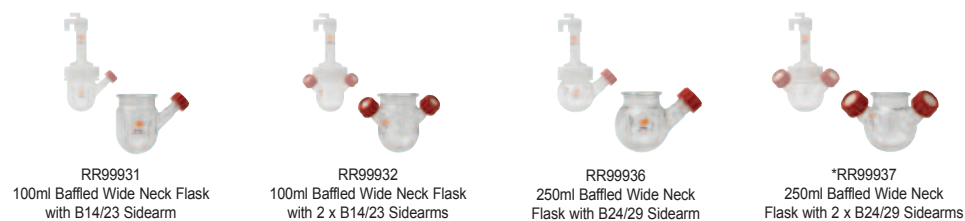
RR99930  
100ml Wide Neck Flask  
with 2 x B14/23 Sidearm

RR99934  
250ml Wide Neck Flask  
with B24/29 Sidearm

\*RR99935  
250ml Wide Neck Flask  
with 2 x B24/29 Sidearm

### 7.6 Wide Neck flasks with Baffles & Sidearms...

- Wide necked baffled flasks improve the turbulence within the flask by disrupting the creation of a central vortex. Baffled flasks are recommended for use with stirrer paddles for maximum effect.



RR99931  
100ml Baffled Wide Neck Flask  
with B14/23 Sidearm

RR99932  
100ml Baffled Wide Neck Flask  
with 2 x B14/23 Sidearms

RR99936  
250ml Baffled Wide Neck  
Flask with B24/29 Sidearm

\*RR99937  
250ml Baffled Wide Neck  
Flask with 2 x B24/29 Sidearms

\*The RR99935 and RR99937 250ml wide neck flasks with 2 x B24/29 sidearms (non-baffled and baffled) are not compatible with the RR99947 Cooled Carousel 6 Plus.

### 7.7 Sundry Glassware...

- Choice of 50ml Liquid Additions Dropping Funnels with B14/23 or B24/29 Rodaviss joints.
- The dropping funnels are ideal for the controlled addition of larger volumes of reagent directly into the reaction flask. Funnels feature a drip cone and pressure equalising arm for ease of addition.
- Choice of Solid Additions Funnel with B14/23 or B24/29 Rodaviss joints; ideal for the addition of powders or solids into the reaction flask.



RR99049  
B14/23 Solid  
Additions  
Funnel

RR99079  
B24/29 Solid  
Additions  
Funnel

RR99048  
B14/23 Liquid Additions  
Dropping Funnel +  
Pressure Equalising Arm

RR99078  
B24/29 Liquid Additions  
Dropping Funnel +  
Pressure Equalising Arm

RR99053  
250ml EZ-2/HT  
Evaporation Flask

RR99045  
Rotary Evaporator Adapter  
Rodaviss B29 Socket  
to B24 Cone

RR99046  
Rotary Evaporator Adapter  
Ordinary B29 Socket  
to B24 Cone

RR99055  
Rotary Evaporator Adapter  
USA 24/40 Socket  
to B24 Cone

## 8. Quick Start Guide

8.1 Assemble the reactor head and cooling reservoir, so that they fit securely together. Make sure that the reactor head is properly seated on the central pillar of the reservoir.

8.2 Locate the Cooled Carousel assembly on top of the stirring hotplate.

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### Important Note

Check that the reservoir can be removed from the top plate without sticking before you fill the reservoir.



### Warning

The cooling reservoir is not suitable for heated reactions. Always ensure that the heating control on the stirring hotplate is switched off and that the hotplate is cool before using the cooling reservoir.

8.3 Place a magnetic stirring bar into your chosen reaction flask.

8.4 If you are using a flask which does not have an integrated reflux neck you will need to attach an appropriate reflux tube at this time or skip to step 8.5.



See 9.5. Assemble the Reaction Flask and Reflux Tube.

8.5 Assemble the glassware and Easy-On PTFE Cap by screwing together. This process requires a 1/4 turn of the cap, hand tighten until the cap feels secure. Ensure the tube is properly located with the O-Ring seal in the cap.

8.6 If required fit a new Silicone Septa to the central hole in the cap, and ensure that the cap valve is in the "open" position.

8.7 Place the flask into the Cooled Carousel at the required location, push the cap down onto the connector pin until the flask is fully located in the base.

8.8 Select a suitable cooling mixture depending on the minimum temperature desired. We recommend using a dry ice/acetone cooling mixture for best cooling results.

8.9 Using a suitable wash bottle or similar, fill the reservoir with solvent to a depth of approximately 2cm.

8.10 Using the RR99908 scoop, carefully add dry ice in small portions until the desired temperature is reached.

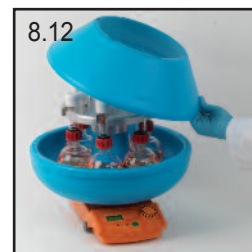
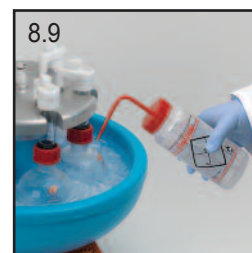
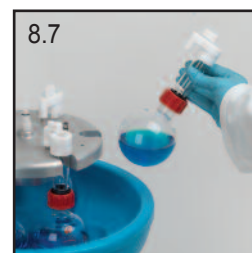
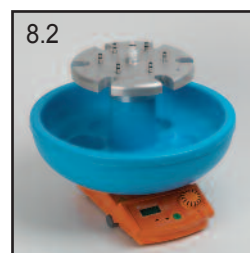
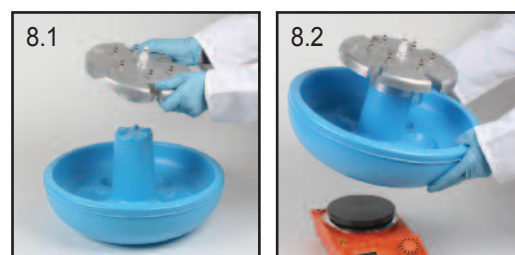
8.11 Once the desired temperature is reached air sensitive liquid reagents may be carefully added via the Silicone Septa under an inert atmosphere.

8.12 Locate the optional lid onto the cooling reservoir.

8.13 Connect the central quick fit gas connector to a regulated inert gas supply and switch the gas supply on.

8.14 If a gas connector position is not in use it can be blocked off with an inverted Silicone Septa.

8.15 Set the stirring hotplate to the required stirring speed.



## 9. Set-Up & Operation

### For reactions using the cooling reservoir

#### 9.1 Assemble reactor head and cooling reservoir

Place the reactor head on top of the central pillar of the cooling reservoir. The circular recess in the reactor head accepts the circular protrusion on the central pillar. The Cooled Carousel's modular design allows the head to be easily lifted on and off the reservoir as required.

#### 9.2 Locating the cooling reservoir onto the hotplate stirrer

The top surface of your stirring hotplate should be cleaned prior to use. Any small particles on the surface may affect the fit of the Cooled Carousel reservoir and have an adverse affect on the performance. Wipe the surface with a cloth or tissue, dampened with an appropriate solvent (e.g. acetone) and check for any signs of contamination or obstruction.

The undersurface of the Cooled Carousel should also be cleaned prior to use. Wipe the surface with a cloth or tissue, dampened with an appropriate solvent (e.g. acetone) and check for any signs of contamination or obstruction.

Position the Cooled Carousel onto the stirring hotplate, making sure that it is secure and properly seated. The circular recess in the base of the unit is designed to fit snugly around the top plate of the stirring hotplate (maximum diameter 135mm).

The Cooled Carousel's modular design allows it to be easily lifted on and off the hotplate stirrer as required. Being circular, it can be rotated when in place to facilitate access to all reaction positions. This removes the need to lean into the fumehood during operation.

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#### Important Note

Check that the reservoir can be removed from the top plate without sticking before you fill the reservoir with a cooling mixture.

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#### Important Note

The Carousel Stirring Hotplate RR98072 is recommended but any stirring hotplate can be used if the top plate diameter does not exceed 135mm.



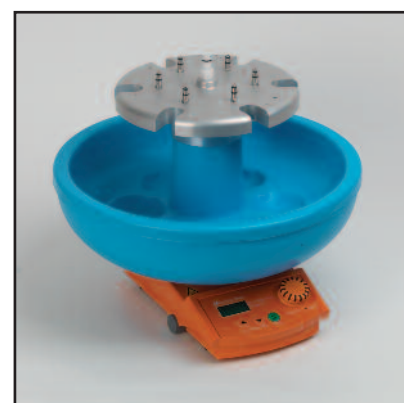
#### Warning

The Cooled Carousel should always be used in a fumehood with protective safety sash.



#### Warning

The cooling reservoir is not suitable for heated reactions. Always ensure that the heating control on the stirring hotplate is switched off and that the hotplate is cool before using the cooling reservoir.



## 9. Set-Up & Operation - Continued

### 9.3 Selection of Glassware

The Cooled Carousel is available with a range of unique glassware tailored for the specific requirements of parallel synthesis.

You should select the glassware for your application based on volume, side arm configuration, neck size and if you need baffles or an azeotropic set-up.

For details of the full range see section 7.

### 9.4 Select an appropriate stirring bar

Select a suitable magnetic stirrer bar and place in the reaction flask.

We recommend the RR99064 Rare Earth - 25mm elliptical PTFE Magnetic Stirring Bars.



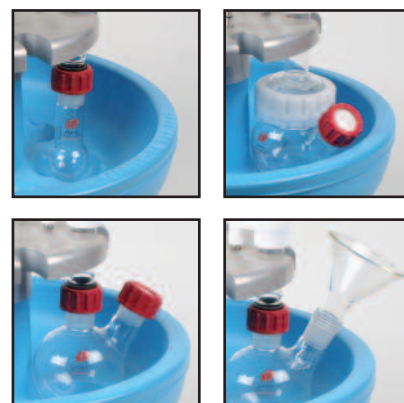
#### Warning

Always take care when loading stirring bars not to drop them, as this may fracture the glass flask. Use RR98094 Stirring Bar Retriever where appropriate.

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#### Important Note

All PTFE magnetic stirring bars with time and use, lose their magnetism. Therefore to optimise stirring performance always replace bars regularly.



### 9.5 Assemble the Reaction Flask and Reflux Tube

All glassware to be used in the Carousel requires a reflux neck. The next step will depend on the glassware you have selected. If you have chosen...

- ...a round bottom flask with an integrated reflux neck - see 9.5.1
- ...a round bottom flask which requires a reflux tube be attached to it - see 9.5.2
- ...a wide neck round bottom flask - see 9.5.3

#### 9.5.1 Glassware with integrated reflux neck

As you have selected glassware with an integral reflux neck you will not need to add a separate reflux tube and can skip directly to step 9.6.

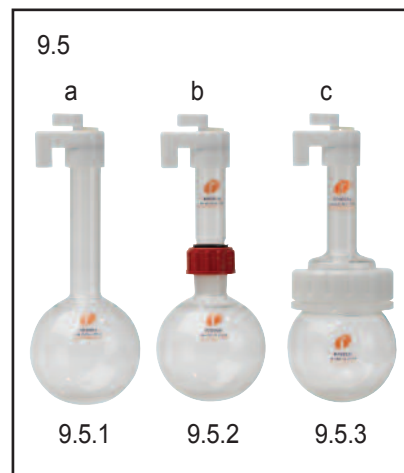
#### 9.5.2 Assembling a round bottom flask requiring a reflux neck

You will need to add a reflux tube to your round bottom flask using a Rodaviss® Ground Glass Joint. Rodaviss is an extra-safe borosilicate glass joint for connecting laboratory glassware.

Rodaviss is safe under vacuum or pressure, grease free, interchangeable with standard 1:10 tapered ground joints (including A, B and C lengths), will not stick or jam, is extremely strong and can be used up to 200°C.

Place the cone of the reflux tube through the red connecting cap and then roll the O-Ring up over the cone until it drops past the shoulder of the cone. Clip the black loosening ring between the top of the connecting cap and glass rim on the cone. Insert the cone into the socket on the flask. Screw down the connecting cap onto the thread on the socket to compress the O-Ring, thus ensuring a perfect seal and a rigid assembly.

In the event of any difficulty in undoing the joint because the surfaces are jammed, simply unscrew the connecting cap back onto the loosening ring, which will push the joints easily apart. This system will release even the most 'frozen' joints.



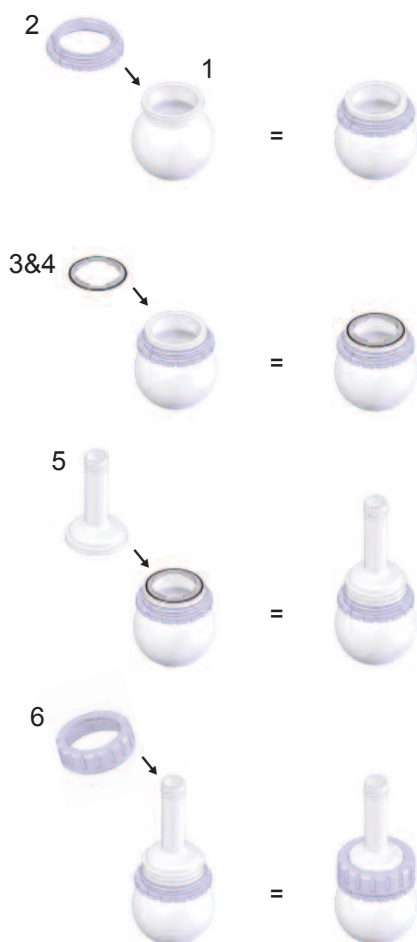
9.5.2



## 9. Set-Up & Operation - Continued

### 9.5.3 Assembling Wide Neck glassware

- Position the Lower Coupling (2) around the neck of the Flask (1) by prising it apart at the open edges and pushing around the neck of the Flask.
- The Nitrile O-Ring (4) fits around the circumference of the Support Collar (3).
- Place the adjoined Support Collar (3) and O-Ring (4) on to the flat flange of the Flask.
- Then place the Reflux Tube (5) on to the Flask and O-Ring assembly. (Note: The Reflux Tube is not held in place until the next step)
- Slide the Upper Coupling (6) over the top of the Reflux Tube (5) and screw onto the Lower Coupling (2).



### 9.5.3 Wide Neck Component Guide



### 9.6 Fitting the Easy-On Caps to the Reflux Neck

Assemble the flask and Easy-On Cap by screwing together. This process requires a ¼ turn of the cap, hand tighten until the cap feels secure. Ensure that the reflux tube is properly located within the O-Ring seal in the cap. The Nitrile O-Ring forms a gas tight seal with the outside of the reflux tube.

Caps feature a replaceable Nitrile O-Ring as standard with an optional Viton replacement. These O-Rings will be subject to chemical attack and will require periodic replacement.

- RR98060 O-Rings for Caps - Nitrile 24mm (standard), pk 100
- RR98160 O-Rings for Caps - Viton 24mm, pk 100

A Septa is located in the top of each Easy-On Cap, which permits either reaction monitoring through the withdrawal of aliquots or the addition of reagents during synthesis. Septa require periodic replacement.

- RR98076 Silicone Septa for PTFE caps, pk 100



#### Warning

Do not over tighten the Easy-On Caps, as this may damage the cap and fracture the reflux tube.

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#### Important Note

Please note that the Easy-On Caps 'seal' on the Nitrile O-Ring before they are fully tightened. Fully tightening the caps will effect a double seal on the PTFE inner of the cap and Nitrile O-Ring.



## 9. Set-Up & Operation - Continued

### 9.7 Using Easy-On Caps with Valve & Septum for Inerting & Additions

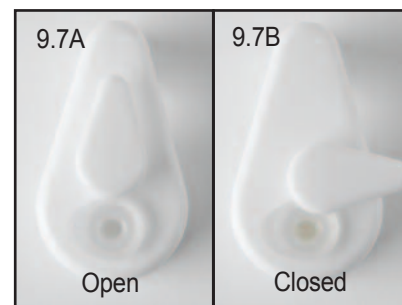
When using the Easy-On Caps, to ensure the flow of inert gas, the valve must be in the 'OPEN' position (see 9.7A). A quarter turn (anti-clockwise or clockwise) will 'CLOSE' the valve, isolating the Reaction Flask (see 9.7B)

The Flasks can be isolated or removed during synthesis by simply closing the valve on the Easy-On PTFE Cap ensuring the other reactions remain under controlled inert conditions.



#### Warning

Do not over tighten the Easy-On Caps, as this may damage the cap and fracture the reflux tube.



### 9.8 Inserting Flasks

9.8.1 Insert the flask into the required location.

9.8.2 Push the Easy-On Cap onto the connector pin, until the cap is fully seated on the connector. Repeat for each flask.

### 9.9 Adding cooling fluid to the reservoir

Select a suitable cooling mixture depending on the minimum temperature desired. (Examples are given in Appendix see page 18). We recommend using a dry ice and acetone cooling mixture for best cooling results.



#### Warning

Do not initially fill the reservoir with solvent beyond a 2cm depth, as bumping (splashing) can occur and solvent may be ejected from the reservoir. In particular, as the cooling mixture contacts the warmer surface of the tubes, rapid evaporation of CO<sub>2</sub> can occur, causing bubbling and spitting.



### 9.10 Adding dry ice to the reservoir

Using the RR99908 scoop, carefully add dry ice in small portions until the desired temperature is reached.

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#### Important Note

By carefully controlling the amount of dry ice being added you can regulate the temperature of the mixture more accurately.

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#### Important Note

If you wish to cool down to the minimum temperature of you cooling mixture it is preferable to put the dry ice in first and carefully add the solvent via a wash bottle afterwards.



See 9.16 Monitoring the coolant temperature.

Once the desired temperature is reached air sensitive liquid reagents may be carefully added under an inert atmosphere via the Suba-Seals using a syringe.



#### Warning

Cooling mixtures can cause severe frost burns. Always wear suitable protective gloves, aprons and faceshield.





## 9. Set-Up & Operation - Continued

### 9.11 Using the Cooled Carousel 6 Plus Lid

The HDPE lid is included with your cooling reservoir. The lid is designed to keep your reaction cooler for longer, minimises condensation and ice formation on your flasks (maintaining visibility of the contents) and prevents spitting from the cooling mixture.

The lid locates onto the cooling reservoir, resting on the edge of the reservoir and the reactor head.

### 9.12 Connect Gas/Vacuum supply

The central gas inlet and radial distribution system combined with gas tight Easy-On PTFE Caps allows reactions to be performed under an inert (nitrogen/argon) atmosphere.

For use under an inert atmosphere attach tubing to the central quick-release coupling and connect via a 3-way tap or stopcock to a vacuum source and inert gas supply (recommended maximum pressure 1psi).

Then, by alternately evacuating the system and filling it with a suitable inert gas (repeating 2 to 3 times) will achieve an inert atmosphere within the flasks.

The Reaction Flasks can be isolated or removed during synthesis by simply closing the valve on the Easy-On PTFE Cap and removing the flask.



#### Warning

When applying gas to the reaction station gas inlet system do not exceed 1 (one) psi as the Reaction Flask and Easy-On PTFE Caps are not rated for pressure, (they are however suitable for applying a vacuum).

### 9.13 Stainless Steel Gas Outlets

The stainless steel Gas Outlets on top of the reactor head feature an upper and lower Nitrile O-Ring as standard, an optional Viton replacements.

These O-Rings may be subject to chemical attack and will require periodic replacement.

RR91060 Nitrile O-Rings 4mm Gas Outlet - Bottom, pk 50

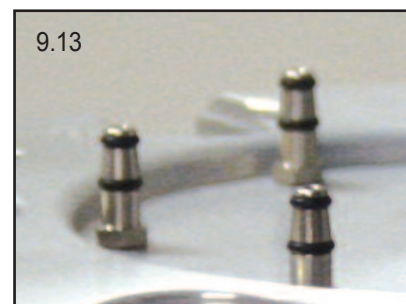
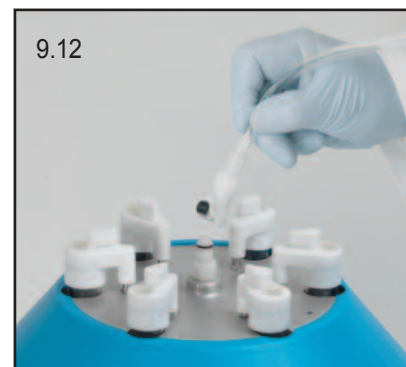
RR91061 Nitrile O-Rings 3mm Gas Outlet - Top, pk 50

RR91062 Viton O-Rings 4mm Gas Outlet - Bottom, pk 50

RR91063 Viton O-Rings 3mm Gas Outlet - Top, pk 50

### 9.14 Unused positions

If all Gas Outlets are not in use, unused outlets can be blocked off with a inverted Silicone Septa.



## 9. Set-Up & Operation - Continued

### 9.15 Temperature control

9.15.1 Set the stirring speed of the stirring hotplate to the desired level.

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#### Important Note

Please read the separate RR98072 Carousel Stirring Hotplate instructions thoroughly before operation.



#### Warning

The cooling reservoir is not suitable for heated reactions. Always ensure that the heating control on the stirring hotplate is switched off and that the hotplate is cool before using the cooling reservoir.

### 9.16 Monitoring the coolant temperature

For low temperature measurement we recommend use of the RR99905 Digital Thermometer (-250°C to +400°C) and 200mm Probe.

The probe may be placed directly into the reservoir bowl to monitor the cooling mixture - by sliding the probe through the hole in the reactor head. Alternatively insert the probe in to one of the reaction tubes (through the Silicone Septa) to directly monitor the sample temperature.

### 9.17 Using the Carousel 6 Plus Stand

The Carousel 6 Plus stand is designed to support the reactor head either with or without reaction flasks. The HDPE stand and integral drip tray catches any dripping condensation from flasks and gives excellent stability.

- Use between reactions.
- Use when loading flasks.
- Use for reactions that require rapid air warming.

### 9.18 Once your synthesis is complete

- Turn off stirring.
- Turn off gas supply and disconnect gas inlet.
- Remove the lid.
- Remove the Carousel reactor head from reservoir and place on the Carousel Stand.
- The Reaction Flasks can now be removed.

### 9.19 Disposing of used cooling fluid



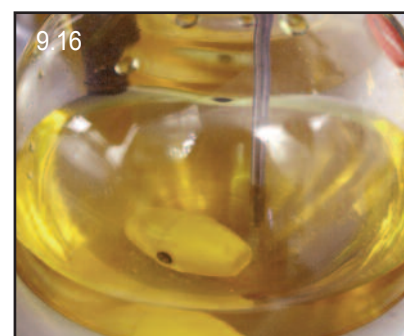
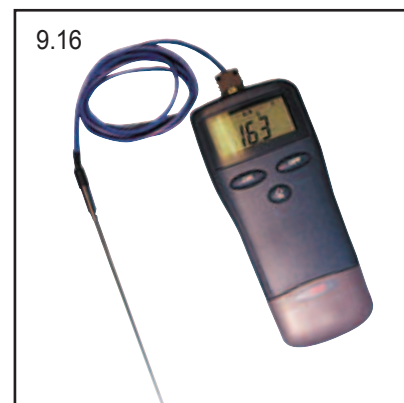
#### Warning

Always wear suitable protective gloves, aprons and face shield when handling cooling mixtures as extreme cold can cause severe frost burns.



#### Warning

Do not attempt to pour cold mixtures into containers that can be sealed. There is a danger of splashing and pressure build up. Preferably allow the cooling mixture to warm to room temperature before disposing of it according to appropriate local regulations.



## 10. Safe handling of cooling fluids

### 9.1 Use protective equipment and follow the instructions

The use of manual cooling mixtures offers considerable savings in time, convenience and cost when compared with automatic chillers or cryostats. However, extreme care should be taken when using cooling mixtures.

- Cooling mixtures can unexpectedly spit and splash. Therefore it is important to cover all exposed skin by wearing suitable protective gloves, aprons and face shield.
- Do not initially fill the reservoir with solvent beyond the recommended depth as vigorous bumping (splashing) can occur and solvent may be ejected from the reservoir. In particular, as the cooling mixture contacts the warmer surface of the flasks rapid evaporation of CO<sub>2</sub> can occur, causing bubbling and spitting.
- Take care when disposing of dry ice/acetone or other solvent mixtures! Do not attempt to pour cold mixtures into containers that can be sealed. There is a danger of splashing and pressure build up. Preferably allow the cooling mixture to warm to room temperature before disposing of it according to appropriate local regulations

The following protective equipment is available from Radleys:

- RR99909 - Cold Temp. Apron 1060mm long Waterproof
- RR99910 - Protective Face Shield
- RR98024 - Protective Cold Temperature Gloves
- RR71505 - Cooling Protection Kit, includes
  - 1 x RR99909 Cold Temp. Apron 1060mm long Waterproof
  - 1 x RR99910 Protective Face Shield
  - 1 x RR98024 Protective Cold Temperature Gloves



## 11. Cooling Mixture Appendix

### Dry Ice/Solvent Cooling Mixtures

Solvent	Minimum Temperature (°C)	Flash Point (°C)	Inhalation Toxicity	Skin Toxicity	Explosive/Fire Hazard
Ethylene glycol	-15	110	low	low	low
Butyl ethyl ketone	-38	41	moderate	low	high
Acetonitrile	-42	5	high	high	high
Cyclohexanone	-46	46	moderate	low	moderate
Di(ethylene glycol) diethyl ether	-52	71	moderate	moderate	moderate
Ethanol	-72	8	low	low	high
Methanol	-78	11	high	high	high
Acetone	-78	-17	low	low	high

*A Phipps & D N Hume J Chem Educ, 45, 664, 1968*

### Other Cooling Mixtures

	Minimum Temperature (°C)	Comments
Sodium chloride/ice	-21	33g salt/81g ice
Calcium chloride/ice	-40	100g salt/81g ice

# 12. Radleys/Genevac Rack Compatibility Guide

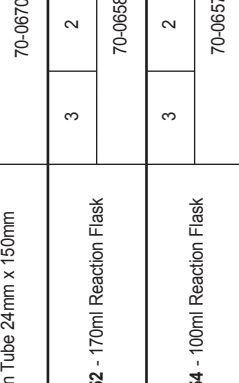
Radleys/Genevac Compatibility	EZ-2			HT-4			HT-8			HT-12		
	Vessels Per Rack	Racks Per Evap	Total Vessels Per Evap	Vessels Per Rack	Racks Per Evap	Total Vessels Per Evap	Vessels Per Rack	Racks Per Evap	Total Vessels Per Evap	Vessels Per Rack	Racks Per Evap	Total Vessels Per Evap
RR91081 - Quick-Thread Glass Reaction Tube 24mm x 150mm	8	2	16	6	4	24	6	8	48	6	12	72
		70-0670			70-0061			70-0061			70-0061	
RR99052 - 170ml Reaction Flask	3	2	6									
		70-0658			N/A			N/A			N/A	
RR99054 - 100ml Reaction Flask	3	2	6	2	4	8	2	8	16	2	12	24
		70-0657			70-0706			70-0706			70-0706	
RR99053 - EZ-2/HT 250ml Evaporation Flask	2	2	4	2	4	8	2	8	16	2	12	24
		70-0581			70-0581			70-0581			70-0581	
RR99041 - 250ml Reaction Flask (Flask only)	1	2	2	1	4	4	1	8	8	1	12	12
		70-0581			70-0581			70-0581			70-0581	

Carousel 12 Plus  
Cooled Carousel 12 Plus  
Mez Syn10 Reaction Station

Carousel 6 Plus  
Cooled Carousel 6 Plus

**Not compatible with Radleys Products**

Carousel 6 Plus  
Cooled Carousel 6 Plus



# Warranty – Email Back

## sales@radleys.com

To qualify for your warranty please complete, scan and email this form to Radleys

<b>Product Name/Model</b>		
<b>Product Batch or Serial No. (If shown)</b>		
<b>Date of purchase</b>		
<b>Supplier's name and address</b>		
<b>Organisation name</b>		
<b>First name</b>		
<b>Last name</b>		
<b>Job Title</b>		
<b>Department</b>		
<b>Address</b>		
<b>Country</b>		
<b>Postal/Zip Code</b>		
<b>Email</b>		
<b>Phone</b>		
<b>Mobile</b>		

<b>Type of Organisation: Tick all relevant boxes</b>			
Academic		Lab Equipment Dealer/Manufacturer	
Animal/Marine/Vetinary		Medical/Clinical/Diagnostic/Device	
Automation/Engineering/Electronics/Instrumentation		Metals/Mining	
Chemical/Agrochem		Natural Products/Tobacco	
Consumer/Cosmetics/Textile		Petrochem/BioFuels	
CRO/CMO/CDMO		Speciality Chemicals/Materials	
Defence		Testing Services	
Energy		Waste/Water/Recycling/Environmental	
Engineering Contracts/Facility Mgmt/ Instrumentation Service		Other _____	
Food/Flavourings/Farming/Beverages			

<b>Field of work: Tick all relevant boxes</b>			
Analytical Chemistry		Liquid Handling & Micro Plates	
Automation/HTS		Material Sciences	
Biochemistry		Medical Devices	
Biological Sciences		Medicinal Chemistry	
Catalysis		Microbiology/Tissue Culture	
Chromatograohy		Molecular Biology	
Clinical/Medical/Pathology		Neurology	
Colloids		Organic Chemistry	
Construction		Parallel Chemistry/Combi-Chem	
Crystallisation		Polymers & Oils	
Drug Discovery		Process Dev/ Scale-Up	
Environmental Health		Process Safety/Calorimetry	
Estate & Facilities Management		Purchasing/Stores	
Food & Agriculture		QC/QA	
Formulation		Separation/SPE	
Geology		Support/Engineering	
Health & Safety		Temperature Control	
Inorganic Chemistry/Metallurgy		Veterinary	