

Chemistry - Innovations for Parallel Chemistry

Carousel Work-Up Station Working volume 1-20ml



Work-Up



Carousel Reaction Station Working volume 1-20ml

Scale-Up

Carousel 6 Reaction Station Working volume 1-150ml



Cooled Reactions

Scale Down

GreenHouse Plus Working volume 1-6ml



Powerful Stirring

Cooled Carousel 6 Reaction Station Working volume 1-150ml



Tornado IS6 Working volume 20-150ml



RDT offer on-site demonstrations of all products via a worldwide network of Product Specialists and International Distributors. RDT are represented in the UK, exclusively by sister company Radleys.

The RDT product range allows full integration between parallel synthesis, work-up and evaporation systems - helping to reduce post synthesis bottle-necks...



Radleys products are only available for France and Germany

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Cooled Reactions



Process Optimisation



Load Resins




Work-Up



Evaporation



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Carousel 12 Reaction Station™

Central inlet/outlet for vacuum and gas, combined with a radial gas distribution system and gas-tight PTFE caps allow reactions under an inert atmosphere

Heated directly by the stirrer's hotplate; Digital temperature control $\pm 0.5^\circ\text{C}$

Water cooled aluminium reflux head provides efficient refluxing within individual glass reaction tubes

Stainless Steel radial gas distribution bars for improved chemical resistance

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

Round design makes all reaction tubes visible; with no need to lean into the fume cupboard



Quick release water coupling with cut-off valve for ease of connection or removal of cooling water supply to reflux head

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

Provides twelve heated and stirred glass reaction positions, with a reaction volume of 5 to 20ml

Low profile base reduces heat-up time

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



Optional Reduced Volume Glass Reaction Tubes with a working volume of 1ml to 10ml are available for use with the Carousel 12. Reduced volume tubes require the use of an aluminium inserts

Low profile base increases maximum recommended operating temperature from 160°C to 180°C (220°C for short periods)

Fits on a standard Carousel or IKA hotplate stirrer, so utilising existing and readily available technology. Compact size has small bench-top footprint - easy to store

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Carousel 12 Reaction Station™

Cost effective personal synthesis stations for parallel solution phase chemistry and solid supported reagent based synthesis

Innovative Stirring and Temperature Control - The patented Carousel provides heating, stirring and refluxing with inert gas control of twelve reaction tubes simultaneously.

Efficient Refluxing - The integrated water cooled reflux head ensures even and extremely efficient refluxing, minimising solvent evaporation during synthesis for even the most volatile solvents such as ether. Cooling water is introduced through quick connect couplings with shut-off valve.


Radial Gas Distribution/Inlet System - The radial gas distribution/inlet system is built into the centre of the reflux head to create an inert atmosphere for air sensitive/moisture sensitive chemistry. The single central inlet/outlet is designed for a tidy installation and easy purging.



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



Use the Work-Up Station for parallel or sequential work-up of 12 samples, using filtration, phase separation, liquid/liquid extraction or SPE.

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 [interchim.com](http://www.interchim.com)

- Please contact your local distributor

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Cooled Carousel 12 Reaction Station™

Robust HDPE cooling reservoir is compatible with a wide range of freezing mixtures including dry-ice/acetone for manually controlled cooling from ambient to -70°C.

Central inlet/outlet for vacuum and gas, combined with a radial gas distribution system and gas-tight PTFE caps, allows reactions under an inert atmosphere.

PTFE caps feature Suba-Seal septa allowing addition of liquid reagents during synthesis under inert conditions. Robust HDPE cooling reservoir

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

Round design makes all reaction tubes visible; with no need to lean into the fume cupboard.

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

Provides twelve cooled and stirred glass reaction positions, with a reaction volume of 3 to 25ml.

Optional Reduced Volume Glass Reaction Tubes with a working volume of 1ml to 10ml are available for use with the Cooled Carousel 12 and Carousel 12.

Formation on outer surfaces. Rare earth cross shaped stirring bars for more vigorous stirring and a deeper vortex, without jamming

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

Fits on a standard Carousel or IKA stirrer, so utilising existing and readily available technology.

IMPORTANT NOTE
The Cooled Carousel cannot be heated and is not suitable for heated reactions.



Sample Prep

Analysis

Biochromatography

Consumables

Purification

Chemistry

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Cooled Carousel 12 Reaction Station™

Cost effective low temperature parallel synthesis from ambient down to -70°C

The Cooled Carousel 12 is quite simply a natural development of the Carousel concept; extending the operating range down to -70°C. The Cooled Carousel brings all the benefits in productivity of multiple parallel synthesis at a fraction of the cost of any other comparable system.

- Simultaneously performs up to twelve cooled and stirred reactions.
- Individual glass reaction tubes have a volume of 3 to 25ml per tube.
- Fits on a standard IKA or Carousel stirrer.
- Robust HDPE Stand provides a convenient support for the cooling head, allowing the reaction tubes to warm-up to ambient, post synthesis.



HDPE Cooled Carousel Stand

Cooled Carousel Cover

Benefits...

- Reduces the amount of condensation on tubes and frost formation.
- Prolongs duration and maintains temperature of cooling mixture
- Reduces the risk of solvents spitting and of spilling very reactive/pyrophoric reagents into cooling mixture.



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Carousel 6 Reaction Station™

Heated directly by the stirrer's hotplate; providing an operating temperature range from ambient to +180°C. Digital temperature control +/- 0.5°C.

Central inlet/outlet for vacuum and gas, combined with a radial gas distribution system and gas-tight PTFE caps allow reactions under an inert atmosphere.

Round design makes all reaction flasks visible, with no need to lean into the fume cupboard.

PTFE cap features an all PTFE valve, which offers superior solvent resistance, gas tight sealing and easy operation.

Water cooled aluminium reflux head provides efficient refluxing within individual glass reaction flasks. Quick-release couplings prevent water loss during set-up/breakdown.

Aluminium inserts allow easy removal of flasks and good heat transfer for refluxing.

Provides six heated and stirred glass reaction positions. Expanded range of glass vessels includes 5ml, 10ml, 25ml, 50ml, 100ml, 170ml & 250ml round bottom flasks, as well as vessels with one or two sidearms.

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

PTFE heat protection ring helps protect user from contact with hot base.

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

New rare earth elliptical PTFE stirring bar provides powerful stirring and a deep vortex.



Aluminium Inserts for 5ml, 10ml, 25ml, 50ml, 100ml and 170ml Flasks



5ml Reaction Flask
Reflux Tube & PTFE Cap



10ml Reaction Flask
Reflux Tube & PTFE Cap



25ml Reaction Flask
Reflux Tube & PTFE Cap



50ml Reaction Flask
Reflux Tube & PTFE Cap



50ml Flask with Sidearm
Reflux Tube & PTFE Cap



100ml Reaction Flask
Reflux Tube & PTFE Cap

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Carousel 6 Reaction Station™

Carousel 6 will increase the productivity of your chemistry. Choose from 5ml, 10ml, 25ml, 50ml, 100ml, 170ml or 250ml round bottom reaction flasks...

The Carousel 6 utilises the same technology as the popular Carousel to simultaneously stir and heat up to six round bottomed flasks.

The Carousel 6 is designed to be used by individual chemists in their own fume cupboard. The affordability of the Carousel 6 brings all the benefits in productivity of multiple parallel synthesis to the chemist at a fraction of the cost of any other comparable system.

- Wide choice of reaction flask options including 250ml Azeotropic (Dean & Stark)
- Simultaneously performs up to six heated and stirred reactions
- Fits on a standard IKA or Carousel stirrer



Carousel 6 with Aluminium Inserts and 100ml Reaction Flasks

The Tornado IS6 facilitates powerful, controlled mechanical stirring of up to six round bottomed flasks with the Carousel 6

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



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- Please contact your local distributor

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Cooled Carousel 6 Reaction Station™

PTFE cap features an all PTFE valve which offers superior solvent resistance, gas tight sealing and easy operation.

Central inlet/outlet for vacuum and gas, combined with a radial gas distribution system and gas-tight PTFE caps allow reactions under an inert atmosphere.

Round design makes all reaction flasks visible; with no need to lean into the fume cupboard.

Robust HPDE cooling reservoir is compatible with a wide range of freezing mixtures including dry-ice/acetone for manually controlled cooling from ambient to -70°C.

Provides six cooled and stirred glass reaction positions, with a range of reaction vessels.

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

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

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

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

Fits on a standard Carousel or IKA hotplate stirrer, so utilising existing and readily available technology.

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



100ml Flask with Sidearm
Reflux Tube & PTFE Cap



170ml Reaction Flask
Reflux Tube & PTFE Cap



250ml Long Neck
Reaction Flask & PTFE Cap



250ml Reaction Flask
Reflux Tube & PTFE Cap



250ml Azeotropic Reaction
Flask with Dropping Funnel



250ml Reaction Flask
with Dropping Funnel



250ml Flask with 2 Sidearms
with Dropping Funnel

Sample Prep

Analysis

Biochromatography

Consumables

Purification

Chemistry

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Cooled Carousel 6 Reaction Station™

The Cooled Carousel 6 will simultaneously stir and cool up to six 5ml, 10ml, 25ml, 50ml, 100ml, 170ml or 250ml round bottomed flasks.

The Cooled Carousel 6 is designed to be used by individual chemists in their own fume cupboard to perform chilled reactions down to -70°C.


- Robust HDPE cooling reservoir is compatible with a wide range of freezing mixtures including dry ice/acetone for manually controlled cooling from ambient to -70°C.
- Insulated foam core maintains low temperatures for long periods, whilst protecting the stirrer from freezing. Also reduces condensation and ice formation on outer surfaces.
- A stainless steel central inlet/outlet for vacuum and inert gas, combined with a radial gas distribution system and gas-tight PTFE caps, allow reactions under an inert atmosphere.
- Round design makes all reaction flasks visible and allows easy addition of reagents and solvents, with no need to lean into the fume cupboard.



Cooled Carousel Cover

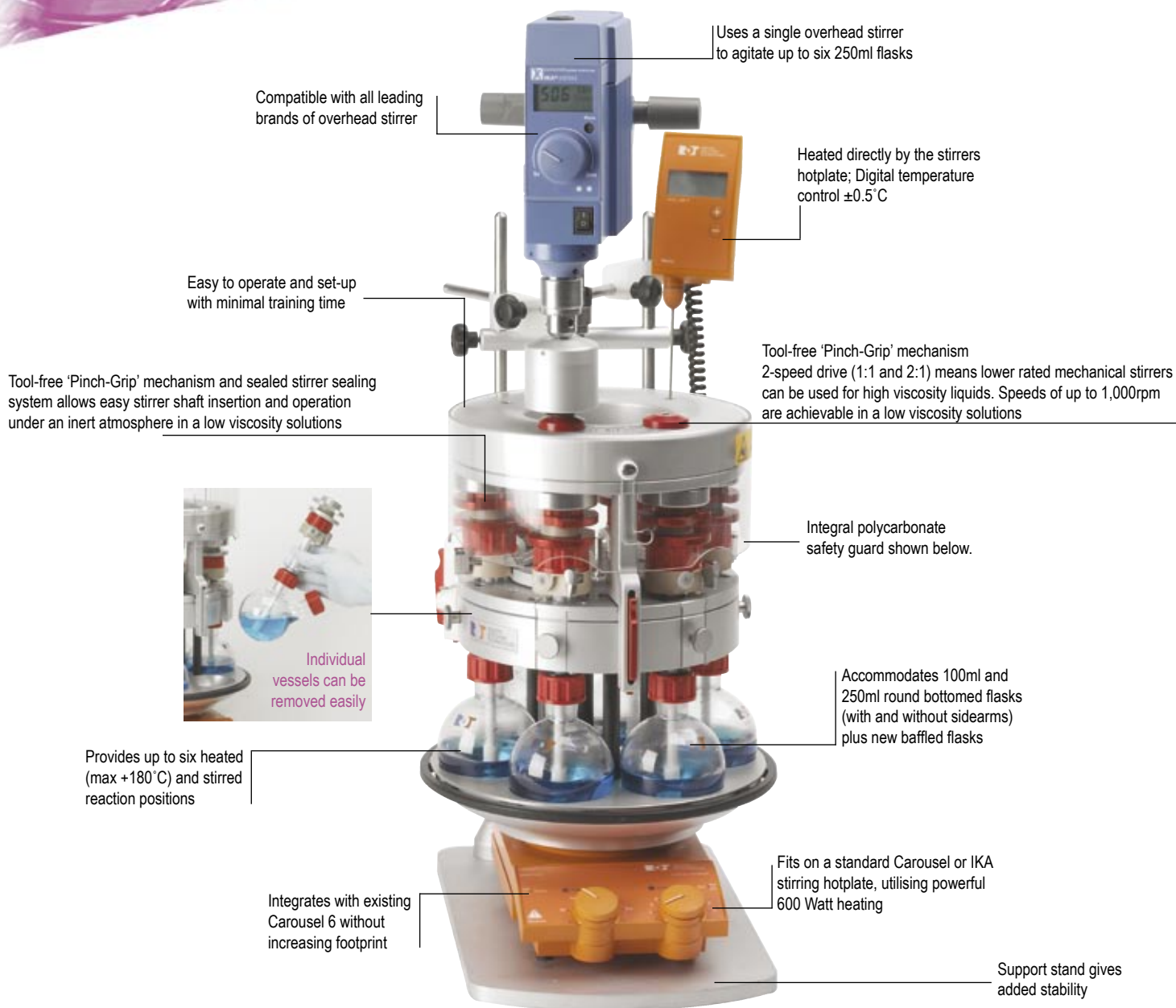
Reduces frost formation, maintains temperature of cooling mixture and reduces the risk of solvents spitting.



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Tornado™ IS6 Overhead Stirring System



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Tornado™ IS6 Overhead Stirring System

Increase your stirring productivity by up to 600%

The Tornado IS6 facilitates powerful, controlled mechanical stirring of up to six round bottomed flasks with the Carousel 6 Reaction Station; offering unrivalled stirring for both viscous samples and for the dispersion of delicate solids in solution...

- Easy to set up and use.
- Integrates with Carousel 6 to provide up to six heated (max +180°C) and stirred reaction positions
- Uses a single overhead stirrer to agitate up to six 250ml flasks
- Compatible with all leading brands of mechanical overhead stirrer
- Evenly distributes high torque to all 6 positions, with 2-speed drive (1:1 and 2:1) means that overhead stirrers with less power/torque can be used for high viscosity liquids.
- Speeds of up to 1,000rpm are achievable in a low viscosity solutions
- Maximum viscosity 10,000cps at 500rpm

Fits onto the
Carousel 6
without the
need for
tools...



Choice of Stirring Shafts...

A range of PTFE stirrer shafts have been designed specifically for the Tornado. The centrifugal stirrer shafts will fit into any one of the RDT 100ml and 250ml flasks. The anchor and propeller stirrer shafts have been specifically designed to fit in the new wide neck flasks (see below).



Expanded range of glass vessels...

In addition to accepting the full range of Carousel 6 Place glassware from 100ml to 250ml, the Tornado also has new range of dedicated vessels with baffles and wide necks. These wide neck vessels facilitate better mixing, easier removal of viscous samples and the accommodation a variety of larger stirrer blades. Baffles are popular with many chemists because they improve stirring by disrupting the creation of a vortex. Just some of these vessel options are shown below.



100ml vessels with two sidearms, baffles, dropping funnel and stirrer seal




100ml
with sidearm



100ml with
sidearm & baffles



250ml with
sidearm

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GreenHouse Plus Parallel Synthesiser™

See page for evaporation system.



Combined Reflux and Additions head with nickel condensing fingers



GreenHouse Plus allows additions & withdrawals through sealing mats



Reaction block fits directly into Genevac vacuum centrifuges



Sample Prep

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GreenHouse Plus Parallel Synthesiser™

The GreenHouse Plus offers all the features of the original GreenHouse Classic but with increased volume and a single combined reflux and additions head...

The GreenHouse Plus provides 24 heated and stirred glass reaction positions able to accommodate reaction volumes from 0.5ml to 7ml. A new combined reflux and additions head allows for convenient additions or withdrawals whilst maintaining an inert atmosphere and efficiency.

The patented GreenHouse Plus brings all the benefits in productivity of parallel synthesis at a fraction of the cost of automated systems. Holding 24 glass reaction tubes in a removable reaction block with the same footprint as a standard micro titer plate the GreenHouse Plus facilitates rapid transfer of samples by multi-channel pipettor or robotic systems.



Stirs & Cools...

The GreenHouse features an optional cooling reservoir for chilled reactions to -70°C using dry ice and acetone

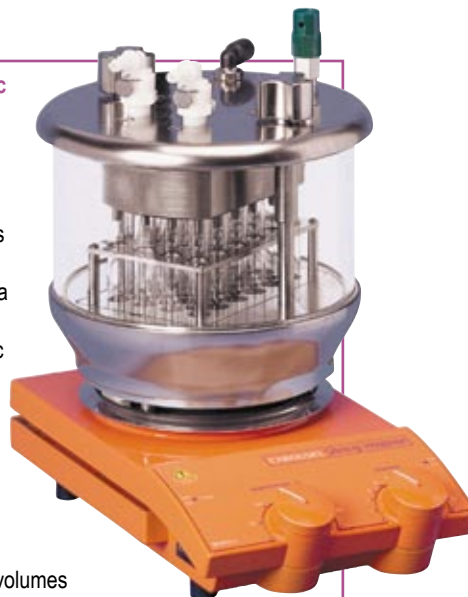
GreenHouse Classic

The patented GreenHouse Plus brings all the benefits in productivity of parallel synthesis at a fraction.

The patented Classic allows chemists to perform 24 reactions in parallel, with a reaction volume of 0.5 to 3ml per tube.

Features include :

- Ideal for smaller volumes
- Has separate reflux and additions heads...



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GreenHouse Blowdown Evaporator™

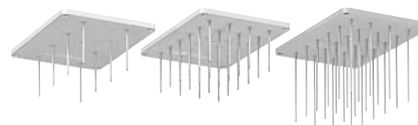
Environmentally friendly enclosed design contains evaporating solvent, allowing subsequent trapping and collection of solvent via a high performance glass condenser.

This precise heat control and the absence of a vacuum also protects your sample and avoids bumping.

Removable head features quick-release handles for rapid changing of blowdown pins plates and safety relief valve on inlet to prevent over-pressure during evaporation

Digitally controlled heating from the hotplate gently adds energy to the sample to speed the evaporation process.

Select the appropriate Blowdown Pin Plate. Interchangeable plates with either 8 or 24 hollow pins deliver an equal flow of gas to each tube, vial or well.



The GreenHouse Blowdown can be used with standard 8 or 24 well Micro Titer Plates, GreenHouse Reaction Tubes or choose from 6 different vial racks.



Fits on a standard Carousel or IKA hotplate stirrer, so utilising existing and readily available technology.

Blowdown Head with 24 Pin Plate,
Standard GreenHouse Base and GreenHouse Reaction Block



Blowdown Head,
Standard GreenHouse
Base, Base Adapter and
24 Position Vial Rack



GreenHouse with
Blowdown Head, low
profile Stand Alone Base
and 24 Position Vial Rack



Blowdown Head,
Standard GreenHouse
Base, Base Adapter and
8 Position Vial Rack



Blowdown Head,
low profile Stand Alone
Base and 8 Position
Vial Rack



Blowdown Head,
Standard GreenHouse
Base, Base Adapter and
24 Position MTP



GreenHouse with
Blowdown Head, low
profile Stand Alone Base
and 24 Position MTP

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GreenHouse Blowdown Evaporator™

Personal parallel evaporation of chemistry samples and HPLC fractions...

This unique evaporation system allows you to either upgrade your existing GreenHouse parallel synthesiser to perform parallel evaporation, or to be used as a separate stand alone bench-top personal evaporator.



By inserting the Adaptor into the GreenHouse Base the system is quickly adapted to accept vial racks or standard micro titer plates.

**High performance
personal evaporation
at an affordable price...**

Compatible with :

- GreenHouse Reaction Block
- 8 or 24 position Vials Racks
- 8 or 24 well Micro Titer Plates



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Metz Syn¹⁰ Reaction Station™

PTFE caps feature an all PTFE valve, which offers superior solvent resistance, gas tight sealing and easy operation. The cap also has a 'barbed' stainless steel inlet for easier removal of tubing.



A central inlet/outlet manifold for vacuum and inert gas, combined with gas-tight PTFE caps, allows reactions under an inert atmosphere.



Thermocouple Module and probes, allow control by solution temperature (Advanced Software Only). Individual users can select which cells are controlled solution temperature or well temperature irrespective of other experiments already running.

Optional, removable water cooled reflux head ensures even and efficient refluxing, minimising solvent evaporation during synthesis for even the most volatile solvents e.g. ether.

Maximum temperature differential between any two positions is 180°C.

Individual stirring control of each position from 250 - 1200rpm, with a magnetic stirrer for each position. Provides excellent magnetic coupling for stirring even viscous samples.

Adjustable stirring rates for individual wells. Also features stirring soft start to ensure stirrer bar coupling.

Individual temperature control of each position with a range of -30°C to +150°C, with temperature stability +/- 0.5°C.

Integral Peltier cells cool and heat individual wells.

Individual well control, via PC Control Software of heating, cooling and stirring.

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Metz Syn¹⁰ Reaction Station™

Simultaneously carry out 10 reactions at the same time - but each with a different temperature, from -30°C to +150°C

Features include...

- Individual well control via PC Computer Interface of heating, cooling and stirring.
- Individual temperature control of each position with a range of -30°C to +150°C, with temperature stability $\pm 0.5^\circ\text{C}$.
- Controlled heating and cooling ramp rates from 0.1 to 5.0°C per minutes. With the option of crash heating/cooling at much faster rates.
- Individual stirring control of each position from 250rpm to 1200rpm, with a magnetic stirrer for each position.
- Optional, removable water cooled Reflux Head ensures even and efficient refluxing.
- A central inlet/outlet for vacuum and inert gas, combined with gas-tight PTFE caps, allows reactions under inert atmosphere.
- Log reaction parameters at selected frequency from once every 5 seconds to 1 hour.
- Change-on-the-fly function for pausing, stopping and modifying profiles in progress.
- Using multi-user function, up to 10 users can enter the Metz Syn10 software, create, run, modify and collate their profile and data irrespective and independent of other users.
- Record solution temperature of each individual well with Thermocouple Module and probes.
- Using the Thermocouple Module and probes, users can control by solution temperature. for truly versatile parallel synthesis has just got better...



Extend the working volume of your Metz Syn10 down to 1ml...
Optional Reduced Volume Glass Reaction Tubes (RR66628) with a working volume of 1ml to 10ml are available for use with the Metz Syn10. These tubes require the use of an Aluminium Reduced Volume Insert (RR66627).

The unique software for truly versatile parallel synthesis has just got better..

Software Features...

- Change-on-the-fly function for pausing, stopping & modifying profiles in progress
- Multi-user function up to 10 users can use the software, and collate their profile & data irrespective of other users
- Variable data sampling at selected frequency from once every 5 secs to 1 hour
- Control by solution temperature

Chemistry - Innovations for Parallel Chemistry

Metz Syn¹⁰ - Reaction Station

The Metz Syn10 allows you to do chemistry at a level more advanced than ever before. Quickly discover the optimal conditions for your chemistry...

Metz Syn10 Software Options...

Standard Software

- Individual programming and profiling of each cell via dedicated PC Control Software.
- Controlled heating/cooling ramps from 0.1 to 5.0°C per minute.
- Crash function for rapid temperature changes.
- Individual stirring profiling from 250 to 1200rpm.
- Automatic detection & recapture of magnetic stirrer bars in the event of uncoupling.
- Soft start stirrer start-up to prevent sample damage and maintain coupling.
- Select and observe key reaction parameters in real time graphical display.
- Record solution temperatures with Metz Syn10 Thermocouple Module.
- Variable data sampling - Monitor and log reaction parameters at selected frequency from once every 5 seconds to 1 hour.
- Change-on-the-fly function for pausing, stopping and modifying profiles in progress.

Advanced Software

Advanced software offers all the features of the "Standard" software plus "Multi-user" and "Control by Solution Temperature", providing the chemist with maximum flexibility from their Metz Syn10.

Software Upgrade Options for existing Metz Syn10 Users

A variety of upgrade options are available to existing Metz Syn10 users to allow them to take advantage of these many new features.



Metz Syn¹⁰ Software

The unique software for truly versatile parallel synthesis has just got better

Chemistry - Innovations for Parallel Chemistry

Metz Syn¹⁰ - for faster process development and reaction optimisation

Metz Syn10 Software Features in Detail...

- **Variable Data Sampling** - Log reaction parameters at selected frequency from once every 5 seconds to 1 hour. Offers the chemist the versatility of high frequency data collection for monitoring small fluctuations accurately or low frequency collection to eliminate the creation of large data files for longer duration experiments.
- **Change-on-the-fly** - function for pausing, stopping and modifying profiles in progress. Once the profile is started further changes can be made to any owner's cell for the remainder of their profile; truly user friendly software.
- **Multi-user function** - up to 10 users can enter the Metz Syn10 software, create, run, modify and collate their profile and data irrespective and independent of other users (Advanced Software Only), creating a reaction station truly capable of multiple independent reactions.
- **Control by Solution Temperature** - Using the Thermocouple Module and probes, users can control by solution temperature (Advanced Software Only). Individual users can select which cells are controlled solution temperature or well temperature irrespective of other experiments already running.



PFA probe inserted through a port in the RR98055 PTFE Probe Cap



Flexible wire Probe inserted via a glass pocket in the RR98051 Reaction Tube



Innovative PTFE magnetic stirring bars



Gas Tight PTFE Caps with PTFE Valve