TECHNE

Equipment for the Life Sciences

Biological Stirrers

Dri-Block® Heaters

Incubators

Gelation timers

qPCR detection

Sample Cooling

Sample Concentrators

Thermal Cycling

Thermoregulators

Water Baths

Bibby Scientific Limited

Some of the most famous names in science...

Bibby Scientific

One of the largest broad based manufacturers of labroatory products worldwide, Bibby Scientific Ltd provides internationally recognised brands with reputations for product quality and high performance. These famous brands are now brought together in a single package to offer an excellent level of quality, service and support. We manufacture one of the largest ranges of benchtop equipment available under four famous brand names.

Electrothermal

Electrothermal are the newest addition to the Bibby Scientific portfolio and are market leaders in heating mantle design and manufacture. The extensive Electrothermal range includes controlled, stirring, Bunsen and spill-proof mantles in various shapes and capacities. Alongside the heating mantle range, Electrothermal offer an extensive selection of stirrers and melting point apparatus.

JENWAY

Jenway® makes a wide range of scientific instruments including UV/Vis spectrophotometers, flame photometers, colorimeters, portable and laboratory meters for the measurement of dissolved oxygen, pH, conductivity and specific ions.

stuart®

The extensive Stuart® range includes blood tube rotators, colony counters, hotplates, hybridisation ovens, rockers, shakers, stirrers and water purification systems.

TECHNE

Techne® is a world leader in the manufacture of temperature control equipment, including water baths, Dri-Block® heaters, and molecular biology products such as hybridisation incubators and thermal cyclers.

http://www.bibby-scientific.com/

TECHNE

Contents

Equipment for the Life Sciences

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information

Welcome to Techne

Equipment for the Life Sciences

Techne® is a long established name and world leader in the manufacture of temperature control and science equipment essential for the life sciences, research, clinical and general laboratory applications. In this edition we are proud to introduce the new Prime thermal cycler range and new PrimeQ real-time PCR system:

- The ^{3}Prime instrument delivers the most feature packed personal cycler on the market. It shares the same touch interface as the full sized models as well as fast ramp rate and excellent uniformity.

- The Prime instrument is a full sized model that will become your reliable laboratory partner for routine PCR. The basic unit can be upgraded to achieve gradient capability without a hardware change. This allows you to better manage your budget by adapting your expenditure to changing laboratory needs.

- The Prime Elite is our top of the range model offering enhanced features and instrument network connectivity
  - Fastest ramp rates
  - Gradient capability as standard
  - Unique CD style drawer mechanism for sample loading
  - Stackable design to save valuable laboratory space
  - Server and satellite models to enable network connectivity

- The PrimeQ real-time PCR system has been designed with an open architecture and chemistry format that allows user flexibility in qPCR methods and research pursuits. The supporting Quansoft software provides an easy to use comprehensive data analysis package with the flexibility to edit experiment setup even after the run is complete.

Techne® products are designed, manufactured and marketed in an ISO9001:2008 environment. Every step from new product development to after sales service follows documented and traceable procedures. The result is a high standard of service and quality-focused culture committed to total customer satisfaction.

At Bibby Scientific HQ, qualified scientists and electrical engineers are available to provide technical support and application advice (see Technical Information section for contact details).

All electrical products produced by Bibby Scientific conform to the latest safety directives including the European CE requirements. For total compliance, all products are tested and approved by a fully accredited external test house. Bibby Scientific is also compliant with the Waste Electrical and Electronic Equipment directive, WEEE and the Restriction of the use of Certain Hazardous Substances, RoHS. You can find copies of our ISO certificates on www.techne.com.

All the products featured in this catalogue are available through a wide range of national and international distributors. For your local distributor details and up-to-date product information please visit our Techne® website at www.techne.com.

Here you will also find software downloads, as well as information on news and events, exhibitions and seminars, frequently asked questions, and much more. The Techne® brand is committed to providing the very best life science and temperature control equipment as well as the highest level of service, before, during and after the sale.

TECHNE

Thermal Cyclers

Introducing the New Prime thermal cycler range

Techne® have upgraded our established thermal cycler range to provide easier programming and increased instrument flexibility. The Prime range has been designed to enhance the user experience with a touch interface and identical software for all models. The new range provides high performance, exceptional value and a reliability backed by the market leading 4 year warranty.

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information

Thermal Cycling at a Glance

Techne® have upgraded our established thermal cycler range to provide easier programming and increased instrument flexibility. The Prime range has been designed to enhance the user experience with an outstanding touch interface and identical software for all models. The new range provides high performance, exceptional value and a reliability backed by the market leading 4 year warranty.

Personal Cycler

Mid-size Cycler

Model	³Prime	³PrimeX	³PrimeG
Block formats	24x 0.2ml 18x 0.5ml	48x 0.2ml 30x 0.5ml	48x 0.2ml 30x 0.5ml
Interchangeable blocks	-	-	-
Maximum ramp rate	3.0°C	3.0°C	3.0°C
Temperature accuracy*	<±0.25°C	<±0.25°C	<±0.25°C
Temperature uniformity*	<±0.3°C	<±0.3°C	<±0.3°C
Program Interface	3.5" VGA touch screen	3.5" VGA touch screen	3.5" VGA touch screen
Stored programs	1000	1000	1000
Networking capability	-	-	-
Adjustable heated lid	Fixed	•	•
Gradient Range	-	Can be upgraded to ³PrimeG spec	30 - 80°C
Max Gradient	-	-	14°C
Dimensions (w x d x h), mm	210 x 350 x 180	210 x 350 x 180	210 x 350 x 180
Licensed for PCR	•	•	•
Warranty	4 years or 80,000 cycles	4 years or 80,000 cycles	4 years or 80,000 cycles

* Recorded at 55°C for ³Prime and Prime and 50°C for Prime Elite

Follow Techne® equipment on Twitter! www.twitter.com/techneequipment

For more information please visit www.techne.com

Full size Cycler

Network Connectivity

Prime	PrimeG	Prime Elite	Prime Elite Satellite
96x 0.2ml 60x 0.5ml 384 well plate	96x 0.2ml 60x 0.5ml 384 well plate	96x 0.2ml 60x 0.5ml 384 well plate	96x 0.2ml 60x 0.5ml 384 well plate
•	•	•	•
3.4°C	3.4°C	5.0°C	5.0°C
<±0.25°C	<±0.25°C	<±0.2°C	<±0.2°C
<±0.2°C	<±0.3°C	<±0.3°C	<±0.3°C
5.7" VGA touch screen	5.7" VGA touch screen	5.7" VGA touch screen	Programmable via Prime Elite or PC Workbench software
1000	1000	1000	1000
-	-	•	•
•	•	Automatic	Automatic
Can be upgraded to PrimeG spec	30 - 80°C	0 - 100°C	0 - 100°C
-	29°C (19°C for 384)	30°C	30°C
240 x 420 x 240	240 x 420 x 240	276 x 375 x 312	276 x 375 x 312
•	•	•	•
4 years or 80,000 cycles	4 years or 80,000 cycles	4 years or 100,000 cycles	4 years or 100,000 cycles

Techne® videos now on Youtube! www.youtube.com/bibbyscientific

For more information please visit www.techne.com

^{3}Prime

Personal Thermal Cyclers

Techne® have upgraded their established personal cycler range to provide easier programming and increased instrument flexibility, whilst maintaining the rapid ramping rates and small footprint that make them ideal for research and teaching laboratories. Using a new colour touchscreen and ready-to-go templates the user is intuitively guided to create even the most complicated programs. The new interface delivers a standardised user experience across the entire Techne® thermal cycler range. Gradient cycling can be achieved directly using the ^{3}PrimeG instrument or by upgrading the ^{3}PrimeX unit. This enables the laboratory to manage changing cycling requirements in a cost effective manner. The Techne® ^{3}Prime cycler range is the most reliable low cost personal cycler solution on the market and is backed up by a 4 year warranty.

^{3}PrimeX

Mid-size Thermal Cyclers

The ^{3}PrimeX delivers all the features of the ^{3}Prime instrument but with an expanded sample capacity, accommodating 48 x 0.2ml microtubes, 30 x 0.5ml tubes plus half a 96 well plate in a horizontal format. Design flexibility allows the unit to be upgraded to included gradient cycling capability.

Additional Features to ^{3}Prime

- Larger block sizes; 48 x 0.2ml, 30 x 0.5ml and half a 96 well plate in horizontal format.
- Upgradable for gradient cycling (for specification see ^{3}PrimeG)

^{3}PrimeG

Mid-size Thermal Cyclers

The ^{3}PrimeG is a small gradient thermal cycler that builds on all the features of the ^{3}PrimeX instrument. The 48 well block format offers eight columns for annealing temperature optimisation and six rows for optimising reagents such as $MgCl_2$ and primer concentrations. Annealing temperatures can be optimised over 14°C between temperatures 30°C to 80°C. The gradient calculator function displays the temperature for each of the eight columns, ensuring easy replication of thermal conditions.

Additional Features to ^{3}PrimeX

- Gradient can be applied across a temperature range of 30°C to 80°C
- Maximum Gradient 14°C
- Gradient calculator function

Key features

- Colour touchscreen for fast program setup
- Small space-saving footprint
- Temperature range 4°C to 100°C
- Fast ramp rate of up to 3.0°C/sec
- Block options; 24 x 0.2ml (compatible with 8 well microtube strips) and 18 x 0.5ml
- Data transfer via USB
- Backed by Techne's 4 year warranty

^{3}Prime

³Prime

Thermal Cyclers

Technical Specification

	³Prime	³PrimeX and ³PrimeG
Sample capacity: 0.2ml	24	48
Sample capacity: 0.5ml	18	30
Maximum heating rate	3.0°C/s	3.0°C/s
Block temperature range	4°C to 100°C	4°C to 100°C
Block uniformity at 55°C	<±0.3°C	<±0.3°C
Temperature accuracy at 55°C	<±0.25°C	<±0.25°C
	Gradient is standard on ³PrimeG and can be upgraded on the ³PrimeX	
Gradient Range	-	30°C to 80°C
Maximum Gradient	-	14°C
Minimum Gradient	-	1°C
Gradient calculator	-	•
Type	4 peltier element/block	4 peltier element/block
Selectable heated lid temperature	100°C to 115°C or off	100°C to 115°C or off
Heated Lid pressure	Fixed	Adjustable, dependent on consumables
Program interface	3.5" VGA colour touchscreen graphical display	3.5" VGA colour touchscreen with graphical display
Maximum number of programs stored	1000	1000
Data transfer	USB port	USB port
Auto re-start on power failure	Yes	Yes
Dimensions (w x d xh), mm	210 x 350 x 180	210 x 350 x 180
Weight, kg	6	6
Voltage	100-230V, 50-60Hz	100-230V, 50-60Hz
Power	155W	155W

4 year warranty for the ³Prime thermal cycler and 80,000 cycles or 4 year warranty for the thermal block, whichever comes first.

Ordering Information

Part Code	Description
3PRIMEBASE/02	³Prime thermal cycler, 24 x 0.2ml
3PRIMEBASE/05	³Prime thermal cycler, 18 x 0.5ml
3PRIMEX/02	³PrimeX thermal cycler, 48 x 0.2ml
3PRIMEX/05	³PrimeX thermal cycler, 30 x 0.5ml
3PRIMEX/USB	³PrimeX upgrade
3PRIMEG/02	³PrimeG gradient thermal cycler, 48 x 0.2ml
3PRIMEG/05	³PrimeG gradient thermal cycler, 30 x 0.5ml

Replacement blocks

Exchange of thermal cycler blocks must be carried out by a trained service engineer.

Ordering Information

Part Code	Description
3PRIMEBASE/02/B	³Prime block, 24 x 0.2ml
3PRIMEBASE/05/B	³Prime block, 18 x 0.5ml
3PRIMEX/02/B	³PrimeX block, 48 x 0.2ml
3PRIMEX/05/B	³PrimeX block, 30 x 0.5ml

Prime

Full Size Thermal Cyclers

This full sized thermal cycler delivers both high performance and high throughput to provide maximum flexibility when processing a large number of samples in parallel.

A versatile, fully interchangeable block system allows exchange in a matter of seconds without the need of tools (60 x 0.5ml, 96 x 0.2ml and 384 well plate formats available)

User friendly programming is achieved via a colour touchscreen and intuitive software that is standardised across the entire Techne® thermal cycler range. A USB port enables the transfer of programmes between instruments and temperature logs to your PC. A real time graphical display provides an instant visualisation of the program status.

Gradient cycling can be achieved directly using the PrimeG instrument or by upgrading the Prime unit. This enables the laboratory to manage changing cycling requirements in a cost effective manner.

The Techne Prime cycler range is one of the most affordable full sized thermal cyclers on the market and is backed up by a 4 year warranty.

PrimeG

Full Size Gradient Cycler

The PrimeG is a gradient enabled thermal cycler with all the features of the Prime unit. The wide linear gradient with a range of 30°C allows annealing temperatures to be optimised in one experiment.

The gradient calculator function displays the temperature for each of the eight columns, ensuring easy replication of thermal conditions.

Additional Features to Prime

- Gradient can be applied across a temperature range 30°C to 80°C
- Maximum Gradient 29°C
- Gradient calculator function

Purchase of this instrument conveys a limited, non-transferable immunity from suit for the purchaser's own internal research and development and applied fields other than human in vitro diagnostics under non-real-time thermal cycler patents of Applied Biosystems LLC.

Key features

- Colour touchscreen for fast program setup.
- Versatile block format
- Temperature range 4°C to 100°C
- Fast ramp rate of up to 3.4°C/sec
- Can be upgraded for gradient cycling
- Data transfer via USB
- Backed by Techne's 4 year warranty.

Prime

Prime

Full Size Thermal Cyclers

Technical Specification

	Prime	PrimeG
Sample capacity: 0.2ml	96	96
Sample capacity: 0.5ml	60	60
Sample capacity: 384 well	Yes	Yes
Maximum heating rate	3.4°C/s	3.4°C/s
Block temperature range	4°C to 100°C	4°C to 100°C
Block uniformity at 55°C	<±0.3°C	<±0.3°C
Temperature accuracy at 55°C	<±0.2°C	<±0.2°C
Gradient	Can be gradient enabled	Can be gradient enabled
Maximum Gradient	-	29°C (19°C for 384)
Minimum Gradient	-	1°C
Type	8 peltier element/block	8 peltier element/block
Selectable heated lid temperature	100°C to 115°C or off	100°C to 115°C or off
Heated lid pressure	Adjustable, dependent on consumables	Adjustable, dependent on consumables
Program interface	5.7" VGA colour touchscreen	5.7" VGA colour touchscreen
Maximum number of programs stored	1000	1000
Data transfer	USB port	USB port
Auto re-start on power failure	Yes	Yes
Dimensions (L x W x H), mm	420 x 240 x 240	420 x 240 x 240
Weight, kg	9.4	9.4
Voltage	100-230V, 50-60Hz	100-230V, 50-60Hz
Power	450W	450W

4 year warranty for the Prime thermal cycler and 80,000 cycles or 4 year warranty for the thermal block, whichever comes first.

Ordering Information

Part Code	Description
Prime/02	Prime thermal cycler, 96 x 0.2ml
Prime/05	Prime thermal cycler, 60 x 0.5ml
Prime/384	Prime thermal cycler, 384 well plates
PrimeX/USB	Prime gradient upgrade
PrimeG/02	PrimeG gradient thermal cycler, 96 x 0.2ml
PrimeG/05	PrimeG gradient thermal cycler, 60 x 0.5ml
PrimeG/384	PrimeG gradient thermal cycler, 384 wells

Replacement blocks

This versatile, fully interchangeable block system allows exchange in a matter of seconds without the need of tools.

Ordering Information

Part Code	Description
Prime/02/B	Prime block, 96 x 0.2ml
Prime/05/B	Prime block, 60 x 0.5ml
Prime/384/B	Prime block, 384 well plates

Prime Elite

Networkable Thermal Cyclers

This premier cycler combines a high performance thermal engine with unique instrument design to deliver the smallest 4 block PCR networking solution on the market. Faster ramp rates and excellent block uniformity are achieved using the TERS™ Thermal Energy Recovery System. TERS™ harnesses the heat released during the cooling phase and delivers it back to the block during the next heating phase increasing ramp rates for faster cycling.

Watch your network grow

Individually...

Add a Satellite...

Add some more...

Specifications

Sample capacity: 0.2ml	96
Sample capacity: 0.5ml	60
Sample capacity: 384-well	Yes
Block temperature range	0 to 100°C*
Block uniformity at 50°C	<±0.3°C
Temperature accuracy at 50°C	<±0.2°C
Gradient range	0 to 100°C*
Maximum gradient	30°C
Minimum gradient	1°C
Gradient calculator	Yes
Pre-run sample cooling	Yes at 4°C
Maximum heating rate	5°C/s
Selectable heated lid temperature	35°C to 115°C or off
Over-temperature cut-out	Yes

Regulated heated lid pressure	Automatic
Program interface	5.7" VGA colour touch screen graphical display
Maximum number of programs	1000 stored
Password protection	Yes
Auto re-start on power failure	Yes
Connection to PC control software	Yes
Tm primer calculator	Yes
Dimensions (w x d x h), mm	276 x 375 x 312
Weight, kg	14
Voltage	100-230V, 50-60Hz
Power	950W

*Minimum temperature is 0°C or 20°C below ambient; whichever is higher.

4 year warranty for the Prime Elite thermal cycler and 100,000 cycles or 4 year warranty for the thermal block, whichever comes first.

Space Saving Design

Increasing your network requires valuable laboratory space. The unique Prime Elite design features enable a 4 block footprint of only 0.21m^2

- Unique front loading sample draw
  - Easy access to interchangeable blocks
  - Heated lid engages on closure
  - Spring mechanism prevents over tightening
- Stackable design
  - Foot recesses hold instrument stable
- Front to back airflow
  - Enables side by side instrument placement
- Power button on front of instrument
  - No need to reach around instrument

Prime Elite

Networkable Thermal Cyclers

Expand your PCR capacity as your throughput requirements grow.

- Use a Prime Elite server as a stand-alone instrument
- A Prime Elite server automatically detects a satellites on connection
- Each Prime Elite instrument can directly control 3 Satellites or 9 via a USB hub
- Up to 9 Satellites can also be run from a PC via the Workbench software

Complete your network

Ordering information

Description	Product Code
Prime Elite thermal cycler, 96 x 0.2ml	ELITE/02
Prime Elite thermal cycler, 60 x 0.5ml	ELITE/05
Prime Elite thermal cycler, 384 well	ELITE/384
Prime Elite satellite thermal cycler, 96 x 0.2ml	ELITESAT/02
Prime Elite satellite thermal cycler, 60 x 0.5ml	ELITESAT/05
Prime Elite satellite thermal cycler, 384 well	ELITESAT/384

Interchangable blocks

Blocks are easily exchanged by removing six screws.

Description	Product Code
Prime Elite block, 96 x 0.2ml	ELITE/02/B
Prime Elite block, 60 x 0.5ml	ELITE/05/B
Prime Elite block, 384 well	ELITE/384/B

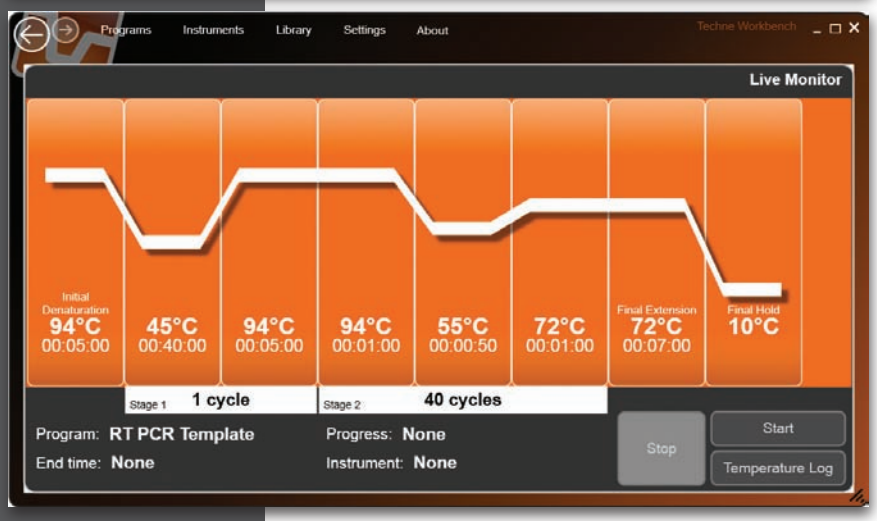
Techne Workbench

Thermal Cycler PC Software

A welcome addition to the Techne® instrument range, the PC application Techne® Workbench is the desktop version of the Techne® touch interface. Carrying the same look and feel, Techne® Workbench is your one-stop place for all your PCR programs on your computer.

Key features

- Create, edit and manage programs on your PC
- Import and work with programs created on any Techne® thermal cycler, and then export them back.
- View and organise temperature logs created on your Techne® thermal cycler
- Use Workbench to directly control Prime Elite Satellites without the need for a Prime Elite base unit



TECHNE

Real-time PCR System

Introducing the New PrimeQ

In 1987 Techne® produced our first thermal cycler. Since that time we have developed a high level of expertise in this field. We are now proud to launch our latest instrument to complement the Prime thermal cycler range. The PrimeQ Real-Time PCR instrument provides an open architecture and chemistry format that has been designed with user flexibility in mind. The Quansoft software package allows manipulation of raw data and experimental set up even after the run is complete.

Page 16 PrimeQ Real-Time PCR System

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information

PrimeQ

Real-time PCR System

The PrimeQ instrument has been designed with the advantage of having an open architecture and chemistry format that allows the end user full flexibility of the qPCR methods and research they wish to pursue.

PrimeQ

Single White LED Light Source

- Ensures consistent power output to each well compared to tungsten halogen lamps or other multiple LED systems.
- Provides a long life span unlike tungsten halogen lamps that require frequent replacement.

PMT (Photomultiplier tube) Detector

- PMT is designed for accurate detection of photons compared to CCD cameras which are just an imaging system.
- PMT provides raw data for analysis that can be manipulated directly whereas CCD uses image comparisons interpreted by internal algorithms.

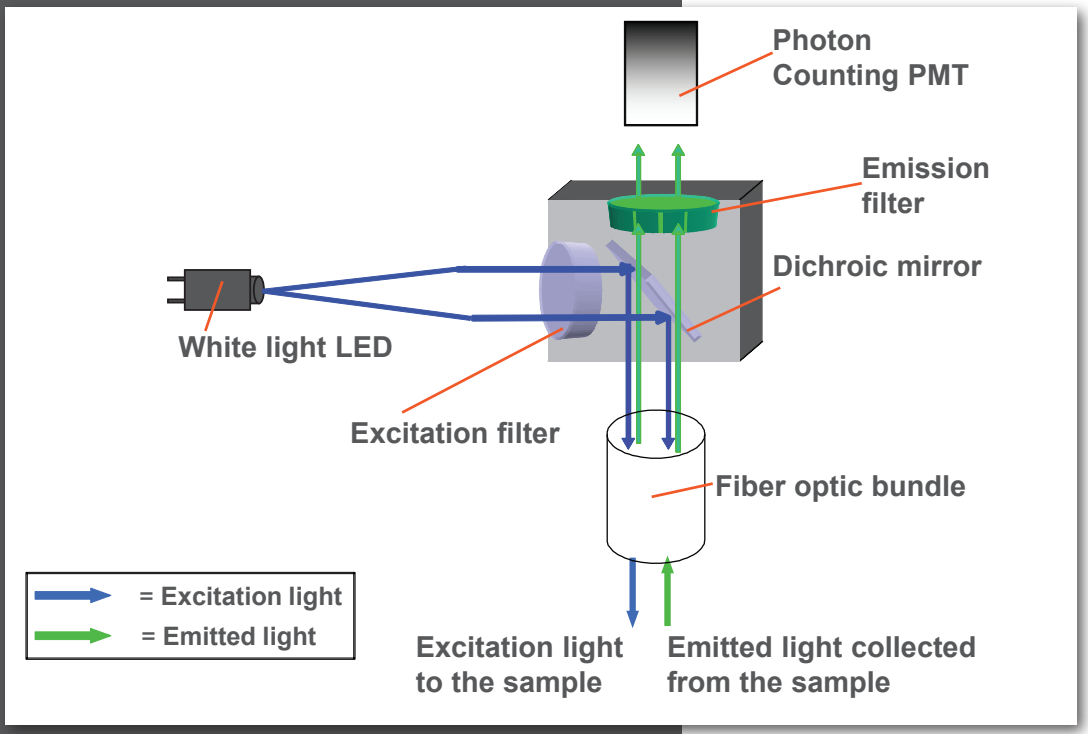
Flexible scanning mechanism

- Allows both partial and full plate reads.
- High accuracy ensures no cross talk between well reads.
- Full plate read in 20 seconds per filter.

Multiplex capabilities

- 4 paired excitation and emission filters housed in an individual cartridge system.
- Open system to preferred chemistry and not locked in to factory calibrated dyes.

Range of excitation/emission wavelengths 470-710nm

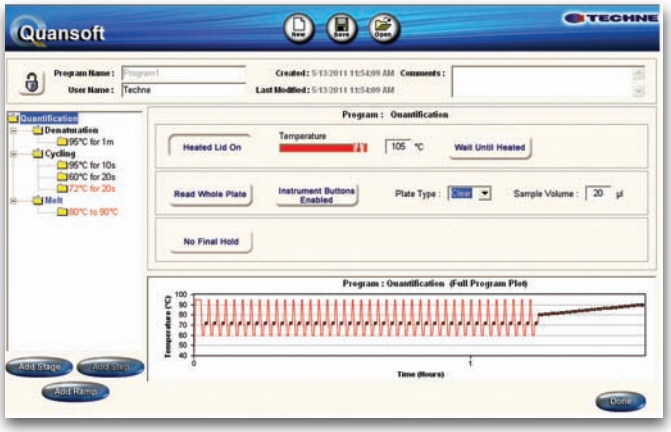


Introducing Quansoft

Accompanying PrimeQ is our unique, intuitive software Quansoft. Employing four user-friendly editor functions Quansoft enables any real-time experiment to be created and analysed with ease.

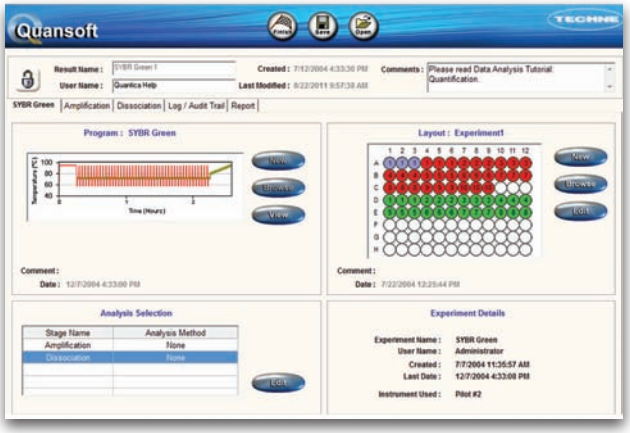
1. Plate layout editor

Define your PCR plate in seconds with colour coded sample identifications.



2. Program editor

Individual cycles and steps as well as a ramp read can be added quickly to build up and display the thermal program and read points.

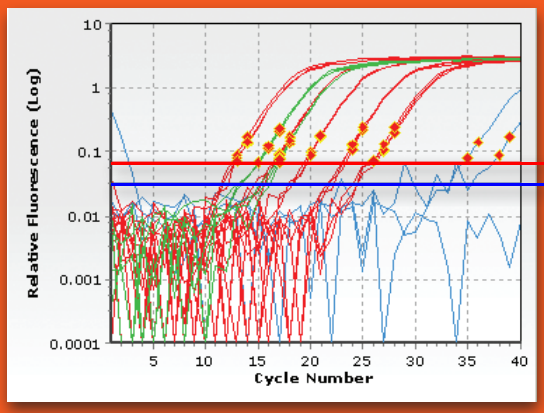


3. Experiment editor

Combine thermal cycling programs, plate layouts and analysis methods to generate a new complete experiment.

4. Results editor

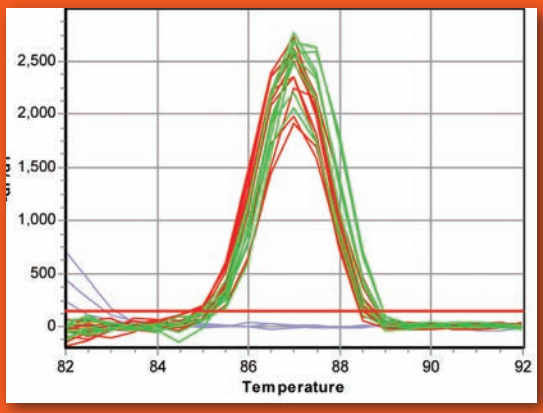
Choose your analysis method and manipulate your raw data before packaging the results in a customised report.



Quantification analysis

Using intercalating dyes or probes PrimeQ provides a wide dynamic range and high sensitivity

- Linearity of at least 9 orders of magnitude.
- Detecting down to a single copy template or to achieve absolute quantification of 1nM fluorescein in a volume of 20µl.



Dissociation analysis

Provides the user confident reporting in genotyping experiments and in product verification analysis.

End point analysis

- Plus/minus scoring.
- Allelic discrimination.

PrimeQ

Real-time PCR System

Technical Specification

Block format	96 x 0.2ml
Block specification	8 x Peltier block employing quad-circuit technology to enhance performance
Block uniformity at 50°:C	< ±0.3°C
Maximum ramp rate	Up to 2.2°C
Temperature range	4°C to 98°C
Sample volume	15 to 50ul
Heated lid	Adjustable between 100 and 115°C in 1°C increments, or off
Maximum sample evaporation	Less than 15% volume loss from any well using the plate sealing recommended by Techne
PC connectivity	USB, OS Win XP SP3 or higher and Win 7 (one unit per PC)
Plate format	Low profile 96-well plate (skirted or non-skirted)
Excitation source	Solid state white light source
Detector	Photon counting photomultiplier tube
Multiplex dye detection	Up to 4 dyes per reaction tube
User selected filters	Maximum of 4 paired excitation/emission filter cartridge systems suitable with currently used dyes*
Fluorescence excitation range	470-650nm (standard filters are centred at 485, 530, 580 and 640nm)
Fluorescence detection range	500-710nm (standard filters are centred at 520, 560, 615 and 685nm)
Dynamic range	At least 9 orders of magnitude of target DNA concentration
Sensitivity (detection threshold)	1nM fluorescein in a 20ul sample

* Custom filter cartridge systems available upon request

Ordering Information

Part Code	Description
PRIMEQ	PrimeQ real-time PCR System (supplied with filters FC02, FC03, FC04, FC05)
FC01	FAM multiplex, 460nm excitation wavelength, 500nm emission wavelength
FC02	Green, FAM/SYBR®, 485nm excitation wavelength, 520nm emission wavelength
FC03	Yellow, HEX, 530nm excitation wavelength, 560nm emission wavelength
FC04	Red, ROX 580nm excitation wavelength, 615nm emission wavelength
FC05	Blue, Cy5, 640nm excitation wavelength, 685nm emission wavelength

TECHNE

Hybridisation Incubators

Hybrigene and Hybridiser

The Techne® name has long been associated with quality incubators for hybridisation. Designed to deliver the accurate temperature and speed control that is vital for producing quality results with every run. Versatile tube formats allowing small probe volumes and the ability to perform various applications simultaneously, is common to both models. Ideal for blotting techniques in which RNA, DNA or protein are immobilised onto nylon or nitrocellulose filters.

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information

Hybrigene and Hybridiser

Hybridisation Incubators

The flexibility you need with the quality you expect from an established world leader in temperature control instrumentation. Ideal for blotting techniques in which RNA, DNA or protein are immobilised onto nylon or nitrocellulose filters.

• Tubes and other accessories can be accommodated together for multiple uses
• Low probe volume, even with large glass tubes. Rotation and design ensure volumes as low as 5ml can be used and recovered
• Unique "slot-in" tubes; with tube rotation speed of 0 to 20 rpm; controllable to suit your application
• Radioactive safe; protective casing and non-drip tube design minimises risk to the user.
• Adjustable feet; for levelling on uneven surfaces
• Drip tray; removable for easy cleaning

Hybrigene

- Temperature range from 10°C above ambient to 80°C
- Can hold up to 16 mini or 4 large glass tubes
- Flexibility at an affordable price, offering excellent temperature accuracy and uniformity
- The Hybrigene is a compact, stackable alternative to the Hybridiser HB-1D
- Stack up to 3 ovens, saving on valuable laboratory space

Hybrigene

Hybridiser HB-1D

- The Hybridiser HB-1D is easy to use and provides complete protection from hybridisation hazards
- Temperature from 10°C above ambient to 100°C
- High capacity; can hold up to 24 mini tubes or 6 unique large tubes
- Hybridisations can be performed with a minimal volume of 5ml of probe
- Adjustable feet to enable accurate levelling
- Unique double-glazed glass door; quiet and safe, providing durable protection

HB-1D Hybridiser

Hybrigene and Hybridiser

Hybridisation Incubators

Technical Specification

	Hybrigene	Hybridiser HB-1D
Maximum glass tube capacity	16 mini tubes	24 mini tubes
Maximum temperature	80°C	100°C
Minimum temperature	10°C above ambient	10°C above ambient
Adjustable rotation speed	0, 5 to 20 rpm	0, 5 to 20 rpm
Adjustable rocking platform	5-20 or 15-60opm	5-20 or 15-60opm
Stability in chamber	<1.0°C	<1.0°C
Stability in tubes	<±0.1°C	<±0.1°C
Uniformity in chamber	<±1.5°C	<±1.5°C
Uniformity in tube	<±0.5°C	<±1.0°C
Temperature set point resolution	0.1°C	0.1°C
Absolute accuracy	<±0.3°C	<±0.3°C
Dimensions (l x w x h), mm	355 x 383 x 432	285 x 385 x 555
Voltage	230V, 50-60Hz	230V, 50-60Hz
Power	750W	750W
Shipping Weight, kg	21	24

Ordering Information

	Product codes		
Description	**230V**	**120V**	**100V**
Hybrigene hybridisation incubator	FHB4DD	FHB4DP	FHB4DY
Note: No tubes supplied with these units, please order separately			
Hybrigene hybridisation incubator (includes 4 large hybridisation tubes FHB16)	FHB4DDT	-	-

Hybridisation HB-1D Ordering Information

	Product codes		
Description	**230V**	**120V**	**100V**
Hybridiser HB-1D hybridisation incubator	FHB1DE	FHB1DQ	FHB1DK

Hybridisation Accessories

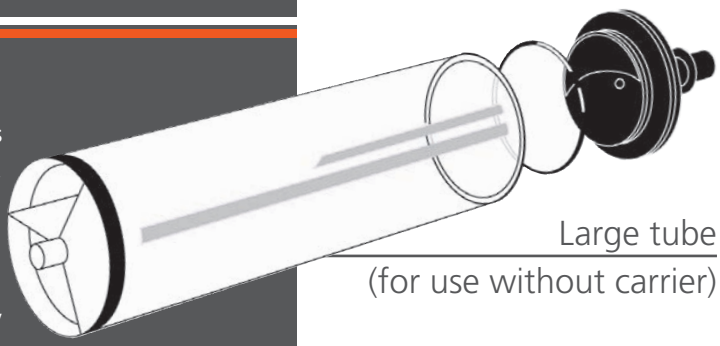
Hybridisation Incubators

Versatile multiple tube formats; mix and match sizes within an instrument to cater for different throughputs, users and applications.

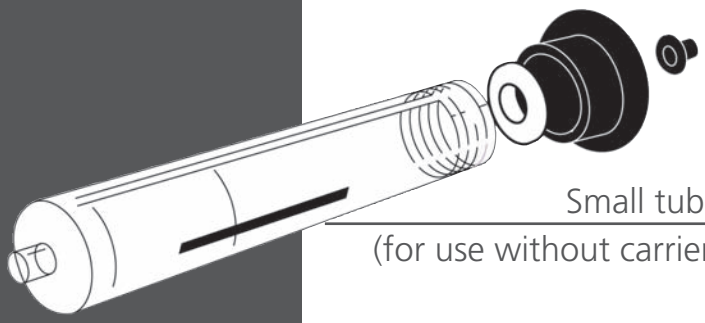
Glassware

Glass hybridisation tubes reduce volumes, simplify washing and improve signals!

- 3 sizes available: small, mini and unique large tubes
- Durable: thick borosilicate glass
- Easy pour: non drip, safe and convenient
- Sealing ring: 'O' ring-sealed end caps ensure no leakage!
- Escape thread on screw cap: easy opening with no vacuum problems
- Tube assemblies: adaptors to hold multiple small glass tubes for increased capacity

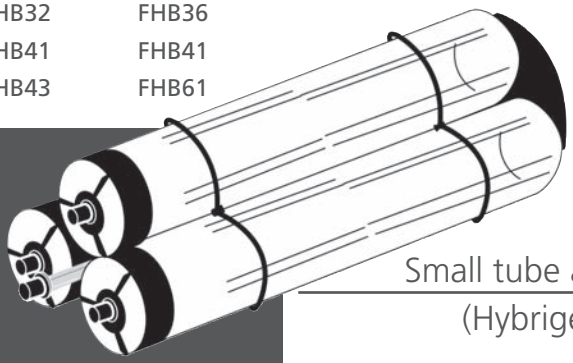


Large tube
(for use without carrier)

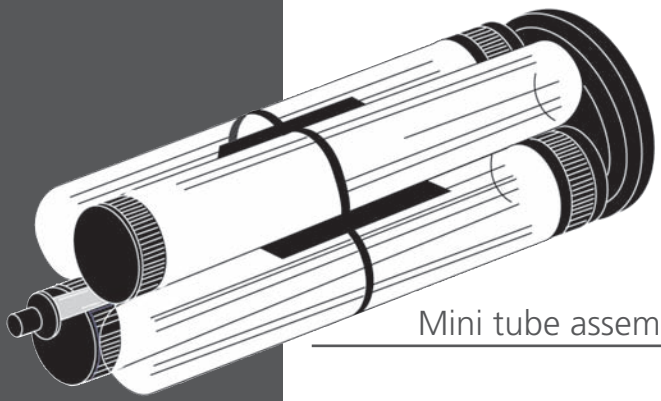


Small tube
(for use without carrier)

Description	Product codes HB1D	Hybrigene
Large (80mm) glass tube without end caps	FHB11	-
Large (80mm) glass tube with end caps	FHB12	FHB16
Small (44mm) glass tube with screw cap	FHB32	FHB36
Mini (32mm) glass tubes with screw caps (pack of 4)	FHB41	FHB41
Multi tube holder for mini tubes	FHB43	FHB61



Small tube assembly
(Hybrigene only)



Mini tube assembly

Hybridisation Accessories

Hybridisation Incubators

Tube Holder

Selectable speed rocking platform

Designed to cater for membrane-bound and slide-bound hybridisations it sits neatly in the base of the unit while still allowing a number of hybridisation tubes to be placed above. Made from stainless steel, the rocking platform enables membranes to be processed using a wave motion. Speed range of 0 to 60 oscillations per minute.

Membrane separators

Strong, re-usable porous mesh sheets for placing between membranes. Ensures even hybridisation when processing multiple hybridisation membranes in one tube. Available in packs of 5 (20 x 20cm)

Rocking Platform

Hybridisation tube rack

Useful storage facility for tubes during membrane loading or when not in use. Carries up to 3 large and 3 small tubes.

Tube holders

Tube holder with clips designed to carry 8 x 50ml tubes. Ideal for higher throughput of smaller samples (Hybrigene only).

Ordering Information

Product Code	Description
FHB1/PLAT	Rocking platform 0-60opm (HB-1D only)
FHB4/PLAT	Rocking platform 0-60opm (Hybrigene only)
FMEM2020	Membrane separators 20 x 20cm (pack of 5)
FHTRACK	Tube rack holder (holds 3 large and 3 small tubes)
F50ML4TH	Tube carrier with clips to hold 8 x 50ml tubes

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Sample Cooling

N°ICE and BL°CKICE

Techne® has developed two solutions to eliminate the use of ice for sample cooling. Incubations can be run all day at sub–ambient temperatures whilst avoiding any risk of sample damage caused when tubes are left floating in melt water or accidently thrown away with the ice.

The N°ICE unit can accommodate any sized sample tube due to its novel bead technology, whilst the BL°CKICE holds two interchangeable Dri-Block® inserts. Both units can cool samples down to 0°C.

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information

N°ICE

Sample Cooling

N°ICE is ideal for incubating any number or size of sample tube at sub-ambient temperatures for extended periods of time. The ceramic-coated beads maintain the temperature and support the tube for as long as required, avoiding the common situation of tubes being left floating in melting wet ice.

The beads are chemically resistant and can be autoclaved at 134°C. As a time saving option, the bucket of beads can be incubated in the fridge overnight and simply inserted into the unit before use.

Technical Specification

Temperature range	0.0 to 40.0°C
Temperature accuracy	±1°C
Temperature units	°C or °F
Cooling technology	Peltier
Temperature display resolution	0.1°C
Temperature display	Orange LED, 5 digits
Power supply	100 to 230V, 50/60Hz
Dimensions l x w x h (mm)	190 x 240 x 225
Shipping Weight, kg	4.5

Key features

- Unit supplied complete with bucket and beads
- Ideal for maintaining reagents at 4°C for the whole working laboratory day
- Temperature range of 0 to 40°C
- Temperature displayed in °C or °F
- Autoclavable ceramic-coated beads

N°ICE

Ordering Information

Part Code	Description
FNOICE	N°ICE complete with bucket and beads, 0 to 40°C
FICEBUCKET	N°ICE spare bucket
FTCOOLBE	N°ICE replacement ceramic beads

Key features

- Temperature range of 0 to 40°C
- Count up and count down timer
- Temperature displayed in °C or °F
- Buzzer indicates reaching the set temperature and the end of the elapsed time
- Holds 2 aluminium insert blocks

BL°CKICE

BL°CKICE

BL°CKICE

Sample Cooling

The BL°CKICE incorporates peltier technology to deliver a rapid cool down time and ensure the unit is quickly available for use. Ideal for incubating samples at sub-ambient temperatures, it holds two interchangeable blocks, from the Dri-Block® range, to allow flexibility of sample tube type. The integrated timer allows up to 9 days to be programmed and the timer will not start until a stable temperature has been reached.

Technical Specification

Temperature range	0.0 to 40.0°C
Temperature accuracy	±1°C
Temperature units	°C or °F
Maximum variation between identical blocks at 37°C	±0.2°C
Temperature display resolution	0.1°C
Cooling technology	Peltier
Cool down time to 4°C	30 minutes
Display	Orange LED, 5 digits
Power supply	100 to 230V, 50/60Hz
Dimensions L x W x H (mm)	190 x 240 x 225
Shipping Weight, kg*	3

* Unit supplied without block inserts, must be ordered separately

Ordering Information

Part Code	Description
FBLOCKICE	BL°CKICE, 0 to 40°C, requires 2 block inserts (see page 36)

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Bibby Scientific

TECHNE

Dri-Block® Heaters

Constant temperature heaters

Techne® Dri-block® heaters are the economical answer to every laboratory's need for a compact constant temperature heater suitable for test tubes, cuvettes, micro-centrifuge tubes, 96 well plates and other small containers. The heat transfer medium is an aluminium alloy block with machined cavities to accept test tubes or sample containers.

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information

Dri-Block® Heaters

Constant temperature heaters

Techne's Dri-block® heaters provide a safe, dry, constant temperature source in the laboratory. The units are particularly suitable for microbiology and clinical laboratories for incubation, boiling, inactivation, wet washing, sample concentration, enzyme analysis and many other clinical or industrial purposes.

- Very accurate temperature control
- Analogue or digital control
- Choice of 2, 3 or 4 block format
- Wide range of interchangeable aluminium blocks
- Blocks available as accessories for all applications - tubes, vials and microplates
- Block extraction tool is supplied, allowing blocks to be removed easily
- 3-year warranty as standard

DB-2A

Dri-Block® Heaters

Two block inserts

DB-2A

- Small, light and compact footprint, economical price
- Can hold up to 2 aluminium insert blocks or one 96-well plate block
- Analogue: temperature setting is by a calibrated dial
- Temperature range from ambient to 100°C
- Fast heat-up rate from 30°C to 100°C in just 12 minutes
- Temperature stability at 40°C: ± 0.05°C

DB-2D

DB-2D & DB-2DH

- Bright orange LED digital display for fast and accurate setting of temperature
- Can hold up to 2 aluminium insert blocks or one 96-well plate block
- Temperature range from ambient to 100°C or 200°C
- Fast heat-up rate: 30°C to 100°C in just 12 minutes
- Temperature stability at 40°C: ± 0.05°C

Dri-Block® Heaters

Two block inserts

Technical Specification

	DB-2A	DB-2D	DB-2DH
Temperature range	Ambient to 100°C	Ambient to 100°C	Ambient to 200°C
Temperature stability @ 40°C	±0.05°C	±0.05°C	±0.1°C
@ 100°C	±0.1°C	±0.15°C	±0.15°C
Temperature setting	Rotary knob	Push Button	Push Button
Temperature display	-	Orange LED	Orange LED
Temperature scale graduation	2°C	No graduation	No graduation
Maximum temperature variation between identical blocks @ 40°C	0.2°C	0.2°C	0.2°C
Set point accuracy	±2°C	±1°C	±1°C
Maximum number of blocks	2	2	2
Heat up time, @ 30-37°C	8 minutes	8 minutes	11 minutes
@ 30-56°C	9 minutes	9 minutes	15 minutes
@ 30-Max.	12 minutes	12 minutes	25 minutes
Heater power	300W	300W	300W
Dimensions L x W x H (mm)	202 x 260 x 105	202 x 260 x 105	202 x 260 x 105
Voltage	230V/50-60 Hz	230V/50-60 Hz	230V/50-60 Hz
Shipping Weight, kg	4	5	5

Ordering Information

	Product codes	
Description	**230V**	**115V**
DB-2A (analogue) ambient to 100°C	FDB02AD	FDB02AP
DB-2D (digital) ambient to 100°C	FDB02DD	FDB02DP
DB-2DH (digital) ambient to 200°C	FDB02HDD	FDB02HDP

Dri-Block® Heaters

Three block inserts

DB-3

- The DB-3 is designed to hold up to 3 aluminium insert blocks or one 96-well plate block
- Analogue: temperature setting is by a calibrated dial
- Temperature range from ambient to 100°C
- Fast heat-up rate: 30°C to 100°C in just 18 minutes
- Temperature stability at 40°C: ± 0.05°C

DB-3

DB-3A

- Temperature range from ambient to 200°C for higher temperature applications
- Can hold up to 3 aluminium insert blocks or one 96-well plate block
- Analogue: temperature setting is by a calibrated dial
- Powerful heater for fast heat-up rate: 30°C to 200°C in just 30 minutes
- Temperature stability at 40°C: ± 0.1°C

Technical Specification

		DB-3	DB-3A
Temperature range		Ambient to 100°C	Ambient to 200°C
Temperature stability	@ 40°C	±0.05°C	±0.1°C
	@ 100°C	±0.1°C	±0.15°C
Temperature setting		Rotary knob	Rotary knob
Temperature scale graduation		2°C	2°C
Maximum temperature variation between identical blocks @ 40°C		0.2°C	0.2°C
Set point accuracy		±2°C	±2°C
Maximum number of blocks		3	3
Heat up time	30-37°C	8 minutes	8 minutes
	30-56°C	12 minutes	12 minutes
	30-Max.	18 minutes	30 minutes
RS232 option available		No	No
Heater power		450W	450W
Dimensions (L x W x H), mm		279 x 260 x 105	279 x 260 x 105
Voltage		230V, 50-60Hz	230V, 50-60Hz
Shipping Weight, kg		6	6

Ordering Information

	Product codes	
Description	**230V**	**115V**
DB-3 ambient to 100°C	FDB03OD	FDB03OP
DB-3A ambient to 200°C	FDB03AD	FDB03AP

Dri-Block® Heaters

Three block inserts

DB-3D and DB-3DL

DB-3D

- Can hold up to 3 aluminium insert blocks or one 96-well plate block
- Bright orange LED digital display for fast and accurate setting of temperature
- DB-3DL temperature range from ambient to 100°C and DB-3D up to 200°C
- Powerful heater for fast heat-up rate: 30°C to 200°C in just 25 minutes
- Interchangeable insert blocks to accommodate a variety of tubes
- Temperature stability at 40°C: ± 0.1°C

Technical Specification

	DB-3D	DB-3DL
Temperature range	Ambient to 200°C	Ambient to 100°C
Temperature stability @ 40°C	±0.1°C	±0.1°C
@ 100°C	±0.15°C	±0.15°C
Temperature setting	Push Button	Push Button
Temperature display	Orange LED	Orange LED
Temperature scale graduation	No graduation	No graduation
Maximum temperature variation between identical blocks @ 40°C	0.2°C	0.2°C
Set point accuracy	±1°C	±1°C
Maximum number of blocks	3	3
Heat up time 30-37°C	11 minutes	8 minutes
30-56°C	15 minutes	9 minutes
30-Max.	25 minutes	12 minutes
RS232 option available	Yes	No
Heater power	450W	450W
Dimensions (L x W x H), mm	279 x 260 x 105	279 x 260 x 105
Voltage	230V, 50-60Hz	230V, 50-60Hz
Shipping Weight, kg	6	6

Ordering Information

	Product codes	
Description	**230V**	**115V**
DB-3DL ambient to 100°C	FDB03LDD	FDB03LDP
DB-3D ambient to 200°C	FDB03DD	FDB03AP

Dri-Block® Heaters

Four block inserts

DB-4D

- Can hold up to 4 aluminium insert blocks or two 96-well plate blocks
- Bright orange LED digital display for fast and accurate setting of temperature
- Temperature range from ambient to 100°C
- Powerful heater for fast heat-up rate: 30°C to 100°C in just 15 minutes
- Interchangeable insert blocks to accommodate a variety of tubes
- Temperature stability at 40°C: ±0.1°C

Technical Specification

		DB-4D
Temperature range		Ambient to 100°C
Temperature stability	@ 40°C	±0.1°C
Temperature display		Orange LED, 4 digits
Temperature setting		Push button
Uniformity within block	@ 40°C	±0.1°C
Uniformity within block	@ 100°C	±0.1°C
Set point accuracy		±1°C
Maximum number of blocks		4
Heat up time, minutes	30-37°C	13
	30-56°C	11
	30-Max.	15
Heater power		600W
Dimensions (L x W x H), mm		356 x 260 x 105
Voltage		230V, 50-60Hz
Shipping Weight, kg		7

DB-4D

Ordering Information

	Product codes	
Description	**230V**	**115V**
DB-4D ambient to 100°C	FDB04DD	FDB04DP

Twin Control Dri-Block® Heaters

Independent digital temperature control

DB-2TC

A Dri-Block® heater with an innovative design accommodating two blocks with independent digital temperature controls. Each block can be set at different temperatures - ideal for multiple users or for applications where samples have to be transferred between two temperatures very quickly. The compact, robust design also allows the unit to be placed in fume cabinets where corrosive/toxic chemicals are used. Operating over the temperature range of ambient to 100°C the unit has an impressive heat up rate and highly accurate thermal control with temperature stability of ±0.1°C.

DB-2TC

- Ideal for multiple users or applications
- Two blocks with independent temperature controls
- Can hold up to 2 aluminium insert blocks
- 4-digit setting with bright orange LED digital displays for fast and accurate setting of temperature
- Powerful heater for fast heat-up rate: 30°C to 100°C in just 19 minutes
- Temperature range from ambient to 100°C
- Temperature stability at 40°C: ±0.1°C

Technical Specification

		DB-2TC
Temperature range		Ambient to 100°C
Temperature stability @ 40°C		±0.1°C
Temperature setting		Push button
Temperature display		Orange LED, 4 digits
Uniformity within block at 40°C		±0.1°C
Uniformity within block at 100°C		±0.1°C
Display resolution		0.1°C
Set point accuracy		±1°C
Maximum number of blocks		2
Heat up time, minutes	30-37°C	6 minutes
	30-56°C	14 minutes
	30-Max.	19 minutes
Dimensions (L x W x H), mm		279 x 260 x 105
Voltage		230V, 50-60 Hz
Power		2 x 150W
Shipping Weight, kg		5

Ordering Information

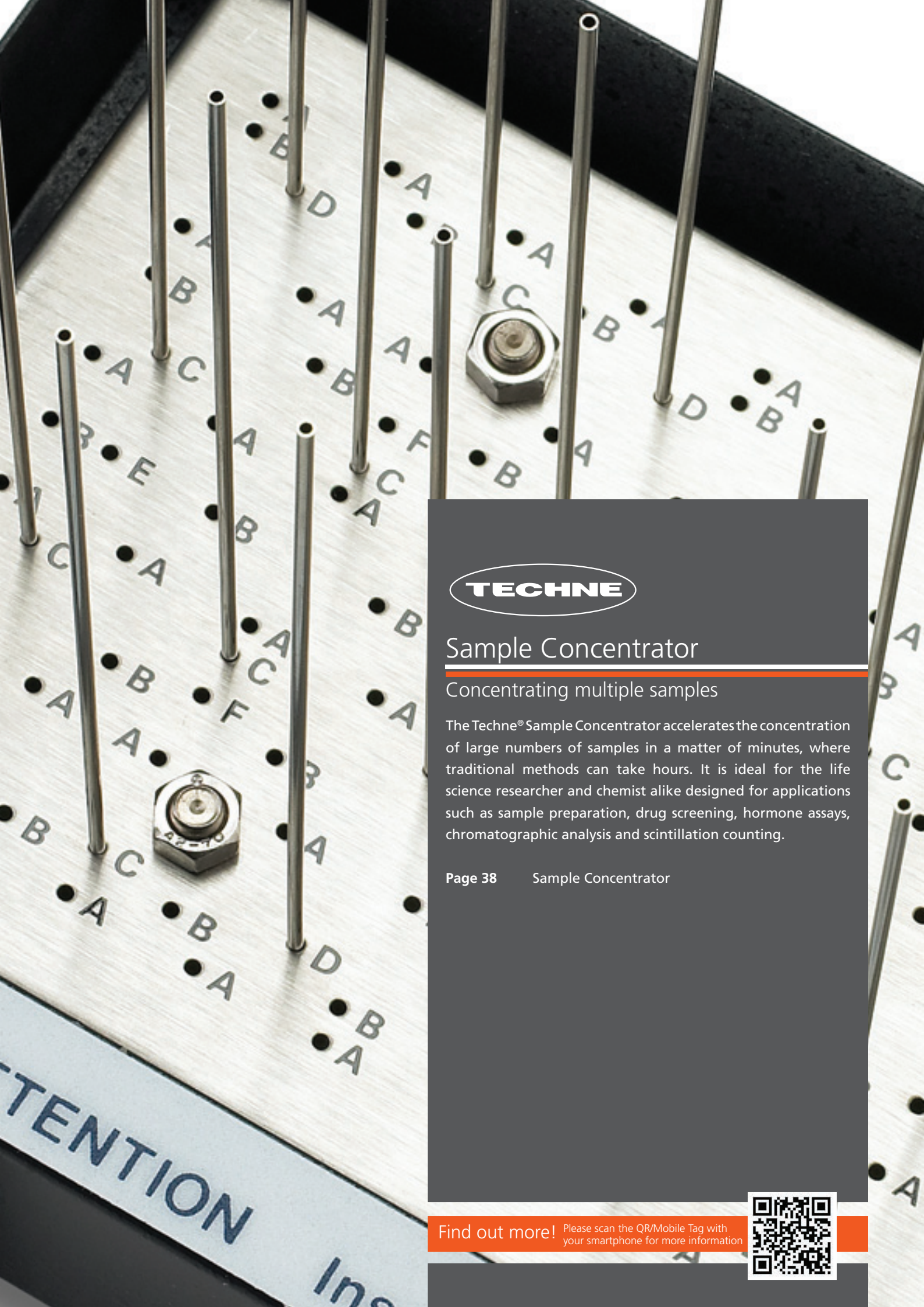
	Product codes	
Description	**230V**	**115V**
DB-2TC ambient to 100°C	FDB02DDTC	FDB02DPTC

Dri-block inserts

For use with Techne® block heaters. Manufactured from anodised aluminium and all with a separate hole to accommodate a thermometer if desired. All blocks have dimensions (d x w x h) 95 x 76 x 51 mm and can be used in any combination (except 96-well blocks).

Aluminium Insert Blocks

Product Code	Tube Size (diameter)	Number of Holes	Size d x w x h (mm)
F3501	Plain Block	None	95 x 76 x 51
F4460	Plain block	Thermometer hole only	95 x 76 x 51
F3512	Plain block	Thermometer hole only	95 x 225 x 51
F3502	6mm	30	95 x 76 x 51
F4461	7 and 9 mm	20/10	95 x 76 x 51
F3503	10mm	20	95 x 76 x 51
F3504	12mm	20	95 x 76 x 51
F3505	13mm	20	95 x 76 x 51
F3506	15mm	12	95 x 76 x 51
F3507	16mm	12	95 x 76 x 51
F3508	19mm	8	95 x 76 x 51
F4462	24mm	6	95 x 76 x 51
F3509	25mm	6	95 x 76 x 51
F4463	26mm	6	95 x 76 x 51
F3510	10mm cuvettes	2 channels	95 x 76 x 51
F3512	Plain block	Thermometer hole only	95 x 225 x 51
F4460	Plain block	Thermometer hole only	95 x 76 x 51
F4464	Microcentrifuge 1.5ml tubes	20	95 x 76 x 51
F4465	0.5ml microtubes	30	95 x 76 x 51
F4466	Plastic spacer	None	95 x 37 x 51
F4467	Hi-Temp 96 block	96	95 x 151 x 61
F4468	Falcon round bottom plate block	96	95 x 151 x 61
F4469	Falcon flat bottom plate block	96	95 x 151 x 61
F4470	Microcentrifuge 2.0ml tubes	20	95 x 76 x 51
F4471	0.2ml microtubes	72	95 x 76 x 51
F4473	Block for 96 x 0.2ml microtubes	96	95 x 151 x 61
F4474	1.0ml Porvair Plate	96	95 x 151 x 48
F4476	Block for Gelation Timer	1 sample cup	95 x 76 x 51
6101308	Block extraction Tool		



TECHNE

Sample Concentrator

Concentrating multiple samples

The Techne® Sample Concentrator accelerates the concentration of large numbers of samples in a matter of minutes, where traditional methods can take hours. It is ideal for the life science researcher and chemist alike designed for applications such as sample preparation, drug screening, hormone assays, chromatographic analysis and scintillation counting.

Page 38 Sample Concentrator

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information

Sample Concentrators

Concentrating multiple samples

A sample concentrator is a fast and convenient way of concentrating multiple samples in a block heater at once. Utilising a simple gas delivery system the sample concentrator passes an inert gas over the surface of your samples via stainless steel needles. This in combination with the heat from the block heater below produces ideal conditions for fast, efficient evaporation.

Compact
The unit is light and compact enough for convenient use in a fume cupboard when toxic solvents are being evaporated.

Needles
The needles are made from high quality stainless steel and are specially designed for use with the Techne® Sample Concentrator. When corrosive solutions are being used, PTFE coated needles are available.

Fully adjustable
The gas delivery needles are inserted into a silicon membrane, in virtually any configuration. The Sample Concentrator's gas reservoir is mounted on a fully adjustable stand for accurate height control. It is also compatible with a Techne® DB-3, DB-3D or DB-3DL Dri-Block® heater and inserts.

Technical Specification

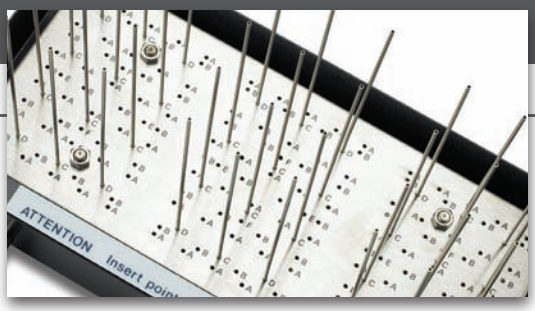
Maximum gas pressure	Must not exceed 2 psi
Maximum vertical travel	320mm
Maximum gas usage	15 litres / minute
Gas	Any inert gas (often Nitrogen)
Gas intake nozzle diameter	6.35mm (1/4")
Needle position	Variable to suit Techne® Dri-Block® units
Dimensions (L x W x H), mm	295 x 240 x 530
Shipping weight, kg (gas chamber and stand)	5

Ordering Information

Product code	Description
FSC400D	Sample Concentrator gas reservoir and stand only(for use with test tubes, cuvettes and small containers)
FSC496D	Sample Concentrator gas reservoir and stand only (for use 96-wells plates)
6101604	Gas chamber sealing pad

Note: A DB-3 Dri-Block® heater and insert blocks are also required.
Note: Needles are not included with the Sample Concentra

Product code	Description
F7209	Pack of 100 needles, 76mm long
F7210	Pack of 100 needles, 127mm long
FSC4NCS	Pack of 100 PTFE coated needles, 76mm long
FSC4NCL	Pack of 100 PTFE coated needles, 127mm long



TECHNE

Gelation Timer

Accurate digital timing

Techne® has set the benchmark for gelation timing for almost 60 years, with several British Standards for this methodology written using our equipment.

Our digital gelation timers are easy to use with a push button display. It is the perfect instrument for accurate measurement and quality control for the gelation of resin or adhesive based samples in the laboratory.

Page 40 Gelation Timer

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information

GT-5 and GT-6

Gelation Timers

Gelation timers are used to measure the transition from liquid to solid during polymerisation. The Techne® Gelation Timer is the ideal instrument for accurate measurement and quality control for the gelation of resin or adhesive based samples in the laboratory.

All models have digital timers, with the time in 1 minute increments (GT-5) up to 9999 minutes or in tenths of a minute (GT-6) up to 999.9 minutes. Every unit is supplied with a calibration certificate for traceability. A bright LED display shows the time to the nearest minute or tenth of a minute, and an audible bleep and light confirm completion of gelation.

- Digital timer: 2 models available, 1rpm and 10rpm
- Stops automatically when gelation occurs
- Easy to use, push button display
- Can be mounted on a retort stand for ease of use
- Plungers are removable for easy cleaning
- Sample cups and disposable plungers are available
- 3 year warranty

Technical Specification

	GT-5	GT-6
Digital timer increment	1 minute	1/10th minute
Maximum time	9999 minutes	999.9 minutes
Dimensions (L x W x H), mm	94 x 69 x 119	94 x 69 x 119
Voltage	230V, 50Hz	230V, 50Hz
Power, W	5W	5W
Shipping Weight, kg	1.32	1.32

Ordering Information

	Product codes		
Description	**230V**	**120V**	**100V**
GT-5 digital gelation timer, 1rpm	FGT5	FGT5/120V/60	FGT5Y
GT-6 digital gelation timer, 10rpm	FGT6	FGT6/120V/60	FGT6Y

TECHNE

Baths and Thermoregulators

Precise temperature control

For over 50 years, Techne® has been the leader in developing clip-on thermoregulators for water baths used in both laboratory and calibration environments. Our themoregulators, baths, dip and flow coolers and refridgerated systems allow for precise temperature control from -40°C to +250°C, integrating the latest in technology to assure excellence in your laboratory.

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information

Selecting the required setup

Baths and Thermoregulators

A comprehensive range of temperature controlled water baths are available from Techne®. Twenty different water bath combinations allow the use of accurate temperatures from -40°C up to 200°C; ensuring a solution for most laboratory applications.

First select the unheated stainless steel bath (see page 42) which has the appropriate volume for the application, for example B-26 which has a volume of 26 litres.

Then add a thermoregulator (see pages 44 to 47) which is suitable for the required temperature range, for example the TE-10D Tempette is a digital thermoregulator for temperatures between -40°C and 120°C

Select any accessories that are required, for example, a gabled or flat lid (see page 48) are available. Gabled lids allow particularly tall tubes to be accommodated.

If sub-ambient temperatures are required it is necessary to add a cooling mechanism to the bath. Techne® recommends the use of a dip or flow cooler (see page 50) for temperatures down to -35°C. For example the RU-200 can lower temperatures down to -20°C. It is also possible to use the cooling coil with a water supply for temperatures from 5°C above the water temperature to ambient.

To assemble the complete system shown opposite the following products are required:

Product Code	Description
FBATH26	B-26 stainless steel bath, 26 litre capacity
FTE10DDC	TE-10D, digital thermoregulator
FFLAT18	Flat lid for 18 or 26 litre bath
FRU2D	RU-200 dip cooler

Unheated Baths

Baths and Thermoregulators

Designed to be used with a clip-on Tempette or Tempunit® thermoregulator, these baths incorporate carrying handles for added safety. All baths have stoved enamelled steel outer cases and are supplied with bridge mounting plate to hold the thermoregulator.

Seam-Free Stainless Steel Construction

- Four bath capacities: 8, 12, 18, & 26 litre
- Corrosion resistant stainless steel inners for easy cleaning
- Rugged splash-proof case
- Integrated carrying handle
- Maximum working temperature of 200°C
- All models come with a 3 year warranty as standard

Welded Stainless Steel Construction

- 48 litre capacity
- All submerged parts are made from stainless steel
- Rugged splash-proof case
- Maximum working temperature of 200°C

Technical Specification

Capacity litres		8	12	18	26	48
Dimensions (mm)	Length	265	354	530	530	594
	Width	325	325	325	325	365
	Height	172	172	172	222	298
Internal Dimensions (mm)	Length	240	329	505	505	559
	Width	300	300	300	300	300
	Height	150	150	150	200	274
Top of bath to liquid level maximum depth (mm)		65	65	65	65	65
Working length to thermoregulator (mm)		115	205	380	380	430
Working depth - max/min (mm)		130/100	130/100	130/100	180/150	255/224
Working capacity - max/min (litres)		8.0/6.0	11.6/8.4	18.0/13.2	26.0/20.5	8.5/42.5
Shipping Weight, kg		5.5	6.1	7.5	9.5	14.6

For temperatures up to 250°C we recommend the use of the LCB range of baths.

Ordering Information

Product codes	Description
FBATH08	B-8 stainless steel bath, 8 litre capacity
FBATH12	B-12 stainless steel bath, 12 litre capacity
FBATH18	B-18 stainless steel bath, 18 litre capacity
FBATH26	B-26 stainless steel bath, 26 litre capacity
FBATH48	B-48 stainless steel bath, 48 litre capacity

Techne Catalogue

Routine Laboratory Thermoregulators

Baths and Thermoregulators

The Techne® Tempette clip-on thermoregulators are designed for use in combination with the Techne® unheated water baths or any other suitable laboratory vessels. They will heat, circulate and safely control the temperature of the liquid in the bath within precise limits suitable for routine laboratory applications.

TE-10A Tempette

- Temperature range of -20°C* to 95°C
- Excellent temperature stability: ±0.01°C at 40°C
- Simple to use analogue control
- Suitable for most routine laboratory applications
- User adjustable over-temperature cut-out for unbeatable safety

TE-10A

TE-10D Tempette

- Temperature range of -40°C* to 120°C
- Excellent temperature stability: ±0.01°C at 40°C
- 4 digit setting with a bright LED digital temperature display
- Suitable for most routine laboratory applications
- User adjustable over-temperature cut-out
- Low liquid level cut-out as standard

TE-10D

Routine Laboratory Thermoregulators

Baths and Thermoregulators

Technical Specification

Specifications to DIN 12876	TE-10A	TE-10D
Temperature range*	-20°C to +95°C	-40°C to +120°C
Temperature selection	Analogue	Digital
Temperature stability using water @ 40°C	±0.01°C	±0.01°C
Method of control	Proportional	PID
Temperature sensor	Thermistor	PRT
Adjustable over-temperature cut-out	Yes	Yes
Low liquid level cut-out	Yes	Yes
Heating/Pumping		
Pump capacity litres/minute	10	10
Pump capacity (mbar)	145	145
Nominal heater power at 120V (W)	1000	1000
Nominal heater power at 240V (W)	1000	1000
Extension below base, mm	145	145
Dimensions (L x W x H), mm	237 x 124 x 260	237 x 124 x 260
Shipping Weight, kg	3.7	3.9

* Refrigeration or cooling coil required for below ambient cooling (see Techne Flow and Dip Coolers and the cooling coil).

Ordering Information

	Product codes		
Description	**230V**	**120V**	**100V**
TE-10A, analogue thermoregulator, -20°C to 95°C, (supplied with clamp)	FTE10ADC	FTE10APC	FTE10AYC
TE-10D, digital thermoregulator, -40°C to 120°C, (supplied with clamp)	FTE10DDC	FTE10DPC	FTE10DYC

High Powered Thermoregulators

Baths and Thermoregulators

The Tempunit® offers increased heater power to enable accurate control over a wider temperature range, designed for applications requiring temperatures above 100°C. Techne also recommends the Tempunit® in conjunction with the larger 26 & 48 litre baths when temperature control above 50°C is required. Controlled heating rates and hold times can be achieved by linking the Tempunit® to the free TechneWorks software#.

TU-20D Tempunit®

- A wider temperature range of -40°C* to 200°C
- Excellent temperature stability: ±0.005°C at 40°C
- 1.8kW heater power for fast heat up
- 4 digit setting with a bright LED digital temperature display
- This unit incorporates an RS232 connection
- User adjustable over-temperature cut-out
- Low liquid level cut-out as standard

TU-20D

TU-20HT Tempunit®

- This sophisticated Tempunit® covers a wide temperature range of -40°C* to 250°C
- Excellent temperature stability: ±0.005°C at 40°C
- 1.8kW heater power for fast heat up
- 4 digit setting with a bright LED digital temperature display
- RS232 connection supplied with TechneWorks software package and connecting lead as standard
- User adjustable over-temperature cut-out with an audible alarm fitted
- Low liquid level cut-out as standard

TU-20HT

TechneWorks is also downloadable free of charge from www.techne.com and www.techneusa.com

High Powered Thermoregulators

Baths and Thermoregulators

Technical Specification

Specifications to DIN 12876	TE-20D	TE-20HT
Temperature range*	-20°C to +95°C	-40°C to +120°C
Temperature range*	-40°C to +200°C	-40°C to +250°C
Temperature selection	Digital	Digital
Temperature stability using water @ 40°C	±0.005°C	±0.005°C
Method of control	PID	PID
Temperature sensor	PRT	PRT
Adjustable over-temperature cut-out	Yes	Yes
Low liquid level cut-out	Yes	Yes
PC Interface	RS232	RS232
Heating/Pumping		
Pump capacity litres/minute	10	Internal circulation
Pump capacity (mbar)	145	-
Nominal heater power at 120V (W)	1500	1500
Nominal heater power at 240V (W)	1800	1800
Cooling coil	No	Option
Extension below base, mm	145	145
Dimensions (L x W x H), mm	237 x 124 x 260	237 x 124 x 260
Shipping Weight, kg	4.0	4.0

* Refrigeration or cooling coil required for below ambient cooling (see Techne Flow and Dip Coolers and the cooling coil). The TU-20HT can only be used with the Dip Coolers

Ordering Information

	Product codes			
Description	**230V**	**120V**	**115V**	**100V**
TU-20D, advanced thermoregulator with RS232, -40°C to 200°C, (supplied with clamp)	FTU20DDC	n/a	FTU20DPC	n/a
TU-20HT, advanced high temperature thermoregulator with RS232, -40°C to 250°C, (supplied with clamp)	FTU20HDC	FTU20HPC	n/a	FTU20HYC

Liquid Bath Accessories

Baths and Thermoregulators

High Temperature Cooling Coil

Accessory designed for assisting in cooling a hot bath more rapidly by flowing tap water or chilled liquid through it, this simple coiled tube attaches to the base of all Techne thermoregulators with ease. This cooling coil can be used to cool a bath to 5°C above the cooling liquid supply temperature.

Cooling Coil

Ordering Information

Part Code	Description
FCC01	High Temperature Cooling coil

Flat and Gabled lids

Manufactured of stainless steel and available to fit all sizes of baths to help prevent evaporation losses. Gabled lids provide extra working headroom within the bath.

Ordering Information

Part Code	Description
FFLAT08	8 litre size Flat Lid
FFLAT12	12 litre size Flat Lid
FFLAT18	18 and 26 litre size Flat Lid
FFLAT48	48 litre size Flat Lid
FGABLE18	18 and 26 litre size Gabled Lid

Gabled Lid

Polypropylene spheres

A ball blanket is an effective way of reducing evaporation and loss of heat from a water bath. It acts as effectively as a lid, whilst providing instant access to the bath. The 25mm diameter spheres are supplied in packs of 250.

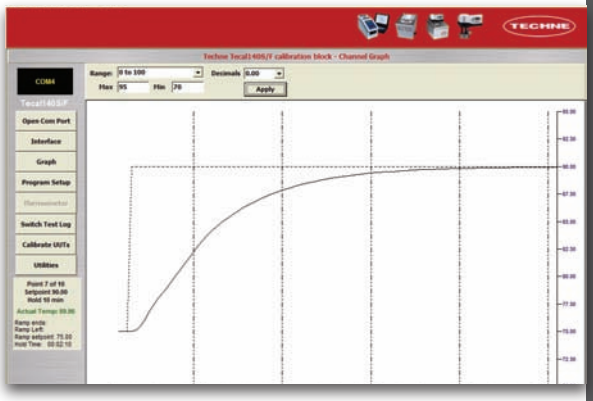
Ordering Information

Part Code	Description
F840D	250 x 25mm diameter polypropylene spheres

Flat Lid

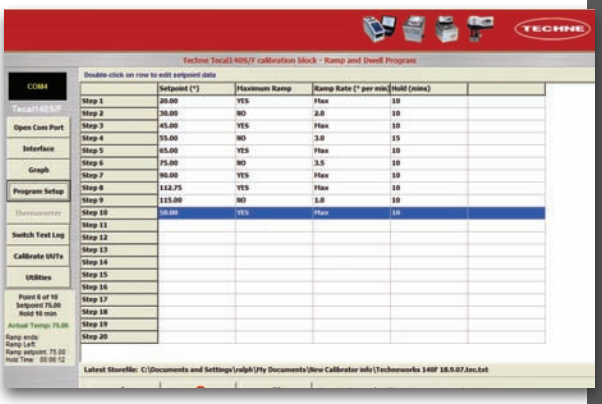
TechneWorks Software

Baths and Thermoregulators



Compatible units are as follows:-
Thermoregulators - TU-20D and TU-20HT

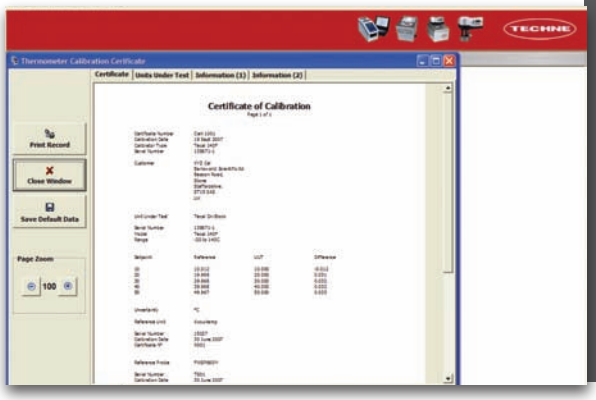
TechneWorks software enables you to specify ramp rates and hold times for your applications. It can be used to calibrate thermometers and sensors and then generate calibration certificates using a Techne Liquid bath. The Calibration bath can act as the reference temperature or connect to a range of external thermometers.



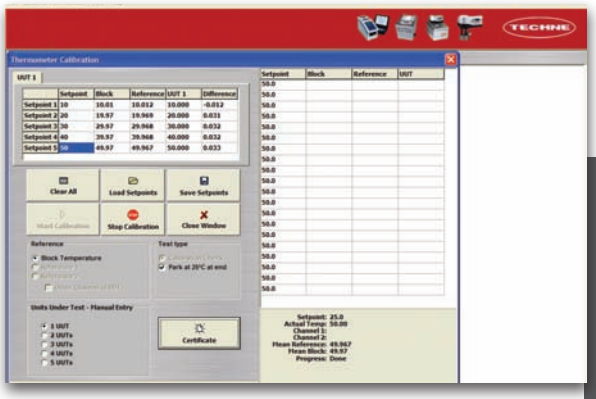
Software Features

ALL MODELS

- Create, open and save programs with up to 20 set points.
- Specify either °C or °F.
- Specify ramp rates and hold times.
- Log data from the instrument while connected to the computer and export the data to an Excel spreadsheet.
- Open, save, view and print logged data.
- Perform a calibration where temperature of the probe is manually entered.
- Perform an automatic calibration routine where the temperature reference probes data is added automatically.
- Run a program in real-time mode.
- Specifying the logging interval from every 5 seconds to 60 seconds



TechneWorks is also downloadable free of charge from www.techne.com and www.techneusa.com



Ordering Information

Part Code	Description
FTWORKS	TechneWorks software CD

Dip and Flow Coolers

Baths and Thermoregulators

The Techne® Flow Coolers work in conjunction with a Techne® thermoregulator. The bath liquid flows through the unit which continually extracts heat from the bath fluid by means of the heat exchanger which is built into the unit. The cooling head of the Techne® Dip Cooler fits neatly and unobtrusively into the corner of the bath and can be secured with a specially designed mounting bracket (supplied). If cooling can be achieved by using cold tap water, a dip cooler is recommended as it conserves water and is easier and more convenient to use.

Techne® Dip and Flow coolers are designed for use when temperatures down to -35°C are required.

- Four models
- Compact refrigeration units for achieving temperatures down to -35°C*
- Cooling head of the Dip Cooler fits neatly into the corner of a Techne® liquid bath (RU series of Dip Coolers)
- Designed for use with Techne liquid baths

Technical Specification

Cooling (at 20°C ambient)		**FC-200**	**FC-500**	**RU-200**	**RU-500**
Minimum achievable temperature		-20°C	-35°C	-20°C	35°C
Cooling capacity: 20°C		140W	210W	145W	240W
Cooling capacity: 0°C		140W	210W	145W	240W
Cooling capacity: -10°C		110W	200W	110W	230W
Internal capacity		200ml	200ml		
Nominal dimensions					
(excluding handles/coil)	width	235	370	235	370
Overall, mm	length	420	430	420	430
	height	300	325	300	325
Coil dimensions, mm	length	-	-	85	85
	diameter	-	-	75	75
Hose length to coil, mm		-	-	1250	1250

*At an ambient of 20°C, using a mixture of 40% water, 40% antifreeze and 20% ethanol

Ordering Information

	Product codes		
Description	**230V**	**115V**	**120V**
RU-200 dip cooler, -20°C	FRU2D	FRU2P	-
RU-500 dip cooler, -35°C	FRU5D	FRU5P	-
FC-200 flow cooler, -20°C	FFC2D	FFC2P	-
FC-500 flow cooler, -35°C	FFC5D	FFC5P	-
Cooling water control pack	-	-	FCP2P

Refrigerated Baths

Baths and Thermoregulators

These baths are a complete refrigerated circulating system for open or closed applications for temperature ranges from -35°C to 100°C. Each bath is supplied with a lid and bridging plate.

There are three bath capacities: 7 litre (RB-5A), 12 litre (RB-12A) and 22 litre (RB-22A). Temperature control is via one of the four thermoregulators and together they offer a choice of 12 different bath combinations.

- Circulating bath with built in refrigeration
- Temperature range from -35°C to 100°C
- Three different capacities of refrigerated bath; 7, 12 or 22 litre
- The combination of 3 circulating baths and 4 thermoregulators provides 12 options

Technical Specification

Cooling (at 20°C ambient)	**RB-5A**	**RB-12A**	**RB-22A**
Minimum achievable temperature[1]	-20°C	-35°C	-30°C
Cooling capacity at 20°C	145W	240W	240W
Cooling capacity at 0°C	145W	240W	240W
Cooling capacity at -10°C	110W	230W	220W
Dimensions			
Dimensions - L x W x H (mm)[2]	430 x 250 x 566	430 x 370 x 610	430 x 395 x 565
Liquid surface to top of bath - max (mm)	65	65	65
Internal dimensions - L x W x H (mm)	192 x 151 x 200	208 x 300 x 150	360 x 295 x 220
Working length to thermoregulator (mm)	224	224	250
Working depth - max/min (mm)	180/135	130/85	200/160
Working capacity max/min (litres)	7.0/5.5	11.6/9.6	22/18
Shipping weight, kg[3]	31	53	61

1 Using a mixture of 50% water and 50% antifreeze to achieve -20°C or 40% water, 40% antifreeze, 20% ethanol to achieve -35°C.

2 Overall size with thermoregulator

3 Add thermoregulator and bath shipping weight to get shipping weight of complete bath system.

Ordering Information

	Product codes	
Description	**230V**	**115V**
RB-5A bath, 7 litre capacity with built in refrigeration unit, -20°C to 100°C	FRB5D	FRB5P
RB-12A bath, 12 litre capacity with built in refrigeration unit, -35°C to 100°C	FRB2D	FRB2P
RB-22A bath, 22 litre capacity with built in refrigeration unit, -30°C to 100°C	FRB22D	FRB22P

Liquid Calibration Baths

Baths and Thermoregulators

The Techne® liquid calibration bath (LCB) series offer compact, accurate and reliable liquid baths which can be used for external circulation or temperature calibration of thermal sensors.

- -35°C to 250°C
- Three different capacities available; 5, 7 or 12 litres
- Temperature stability; ±0.005°C depending on choice of control unit
- Fully insulated bath for excellent heat retention
- Analogue or digital temperature selection, depending on choice of control unit
- Includes cover, lid and bridging plate

When temperature calibration is required the compact liquid baths offer excellent stability over the entire temperature range. The LCBs can be also be used for external circulation to maintain temperatures of samples in viscometers, photometers, refractometers, fermenters and other reaction vessels.

All models of LCB offer high pump performance and exceptional thermal stability from -35°C to 250°C. The baths are fully insulated on all sides and base and are fitted with a cooling coil for connection to a cold water supply for use at temperatures around ambient. The minimum temperature achievable is -35°C when a Dip or Flow Cooler is added to the system.*

Each bath is supplied complete with lid, drain tap, carry handles, a cooling coil (with bung) and hole to position a certified sensor. The TechneWorks software package is available for the TU-20 thermoregulators free of charge from www.techne.com.

Technical Specification

	5 litre	7 litre	12 litre
Dimensions (L x W x H), mm	351 x 260 x 183	351 x 260 x 233	351 x 260 x 358
Bath opening, mm	140 x 140	140 x 140	140 x 140
Working depth, mm	125	175	300
Shipping Weight, kg	5	6	9

* At an ambient of 20°C, using a mixture of 40% water, 40% antifreeze and 20% ethanol

* LCB baths fitted with a TU-20HT thermoregulator are not suitable for use with a Flow Cooler.

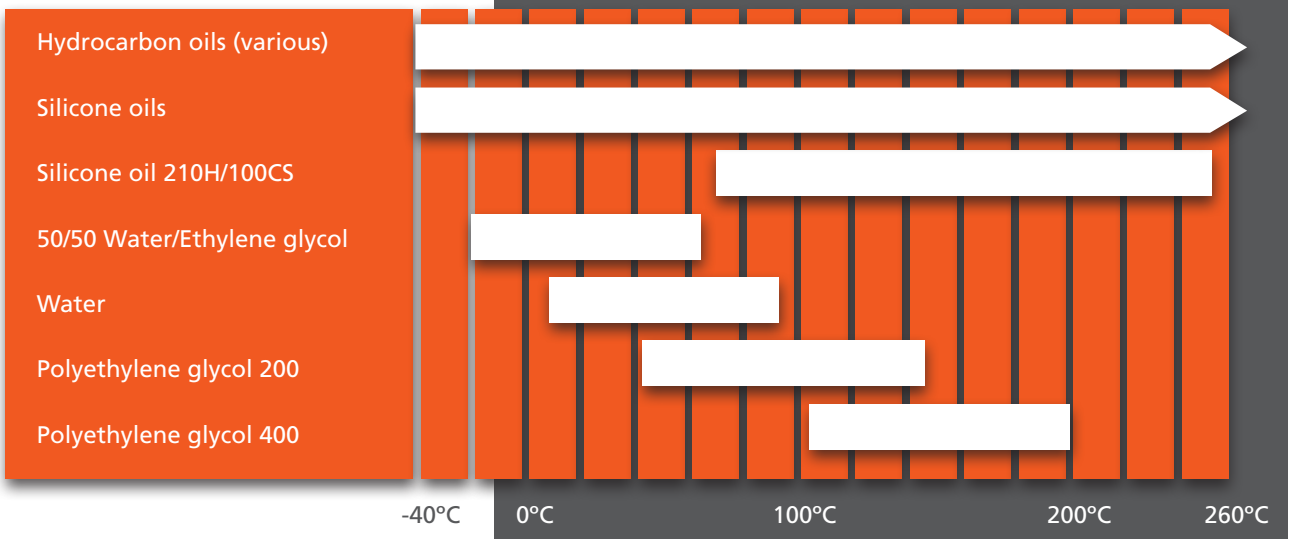
Ordering Information

Description	Product codes
LCB insulated liquid calibration bath with cooling coil, 5 litre capacity	FBCAL05D
LCB insulated liquid calibration bath with cooling coil, 7 litre capacity	FBCAL07D
LCB insulated liquid calibration bath with cooling coil, 12 litre capacity	FBCAL12D

Choice in Liquids

Baths and Thermoregulators

Some liquids can be hazardous when used in thermostatic baths. The user should ensure that due regard is paid to the flash-point and other characteristics of the chosen liquid. This table does not represent the recommendations of Techne® but may be of assistance to the user in making an initial selection.



N° more ice and floating tubes

Introducing the Techne® sample cooling range

The Techne N°ICE and BL°CKICE units are ideal for incubating samples at sub-ambient temperatures for the whole working day, and can perform incubations at elevated temperatures as well. The chemically resistant beads in the N°ICE bucket are suitable for any number or any size of sample tubes, maintaining the temperature and supporting the sample containers. The changeable Dri-Block® inserts in the BL°CKICE unit cater for many different sets of tubes of fixed sizes, and this unit also has additional timer and alarm features.

The temperature range of 0° to 40°C is ideal for applications in the biological laboratory: storing reagents at 4°C, incubating restriction enzyme digests at 37°C or performing ligations at 15°C.

TECHNE

www.techne.com

Find out more!!!

Please scan the QR/Mobile Tag with your smartphone for more information

A Bibby Scientific Brand

TECHNE

Cell Culture System

Biological Stirrers and Culture Vessels

The cell culture system from Techne® offers the ideal environment for the growth of suspension cells. The combination of the magnetic stirrer and the glass culture vessels ensures excellent growth conditions and high cell viability

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information

Cell Culture System

Biological Stirrers

The stirrers are designed for optimal suspension cell culture and the use of microcarriers. A system comprises of a stirrer platform and a number of glass culture vessels.

- Five stirrer platform sizes are available, along with 4 sizes of culture vessel
- Speed range from 0 to 80rpm
- Softstart/stop for slow acceleration and deceleration
- Interval setting option
- Stainless steel stirrer platform with locators for the culture vessels
- Designed for incubator environments up to 40°C and 95% humidity

Unique stirring action

The culture vessels incorporate a unique base design which, together with the bulb-ended stirrer, ensures that the cells are lifted into suspension at the lowest possible speeds. This gentle stirring action promotes high cell yields by preventing cell shearing.

The stirrers create virtually no heat so there is negligible heat transfer from the magnetic drive to the culture vessel, making the system suitable for use in both incubators and cold rooms.

Calibrated speed control and interval stirring

Cell attachment to microcarriers and high cell yields are ensured by the special softstart/stop design and interval stirring option. The former ensures slow acceleration and deceleration of the stirrer, avoiding excessive turbulence in the culture media and eliminating cell damage. The interval stirring can be used during the attachment phase to further reduce agitation of the media or when culturing particularly fragile cells.

MCS-101L

- Accommodates one 3 or 5 litre culture vessel
- Strong, rugged and lightweight

MCS-102L

- Holds up to two 1 litre culture vessels
- Small, light and compact and space saving

MCS-104S

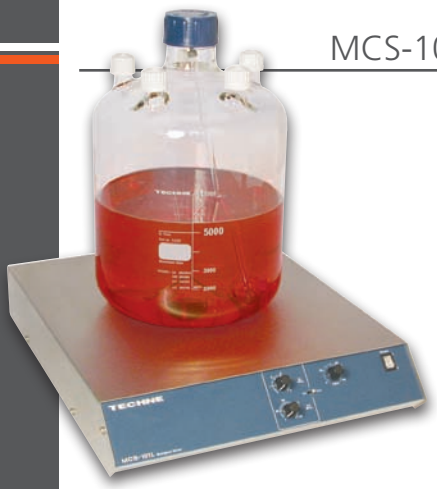
- Hold up to four 500ml culture vessels
- Small, light, compact and space saving

MCS-104L

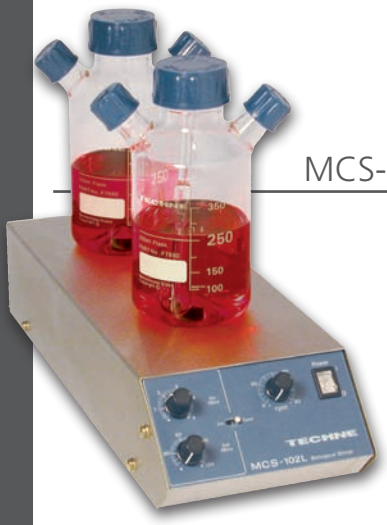
- Holds up to four 1 litre culture vessels
- Strong, rugged and lightweight

MCS-104XL

- Accommodates four 5 litre culture vessels
- Designed for large-scale production
- Strong, rugged and lightweight



MCS-101L



MCS-102L

MCS-104L

MCS-104XL

Part code: FMCS104XL

Cell Culture System

Biological Stirrers

Unique Stirring Action

Technical Specification

All models

Speed	
Speed range	0 to 80rpm
Speed setting accuracy	<± 3rpm
Softstart speed control	20 second acceleration
	20 second deceleration
Interval stirring	
Variable on-time	6 seconds to 5 minutes
Variable off-time	2 minutes to 2 hours
Limited operating conditions	40°C and 95% relative humidity (non-condensing)
Voltage	Dual Voltage 230/110V 50/60Hz
Nominal power consumption	2W

Technical Specification

Unique to each model

	MCS-101L	MCS-102L	MCS-104S
Vessels per system	1	2	4
Maximum vessels size (ml)	5000 (3000 min.)	1000	500
Dimensions (L x W x H), mm	495 x 395 x 90	400 x 140 x 90	365 x 250 x 90
Net weight, excluding vessels, kg	6.5	3.0	4.1
Shipping weight, kg	7.5	4.2	5.3

	MCS-104L	**MCS-104XL**
Vessels per system	4	4
Maximum vessels size (ml)	1000	5000 (only)
Dimensions (L x W x H), mm	495 x 395 x 90	595 x 530 x 90
Net weight, excluding vessels, kg	6.1	11.5
Shipping weight, kg	7.1	13.5

Ordering Information

Description	**Product codes**
MCS-101L biological stirrer	FMCS101L
MCS-102L biological stirrer	FMCS102L
MCS-104S biological stirrer	FMCS104S
MCS-104L biological stirrer	FMCS104L
MCS-104XL biological stirrer	FMCS104X

Cell Culture System

Glass Culture Vessels

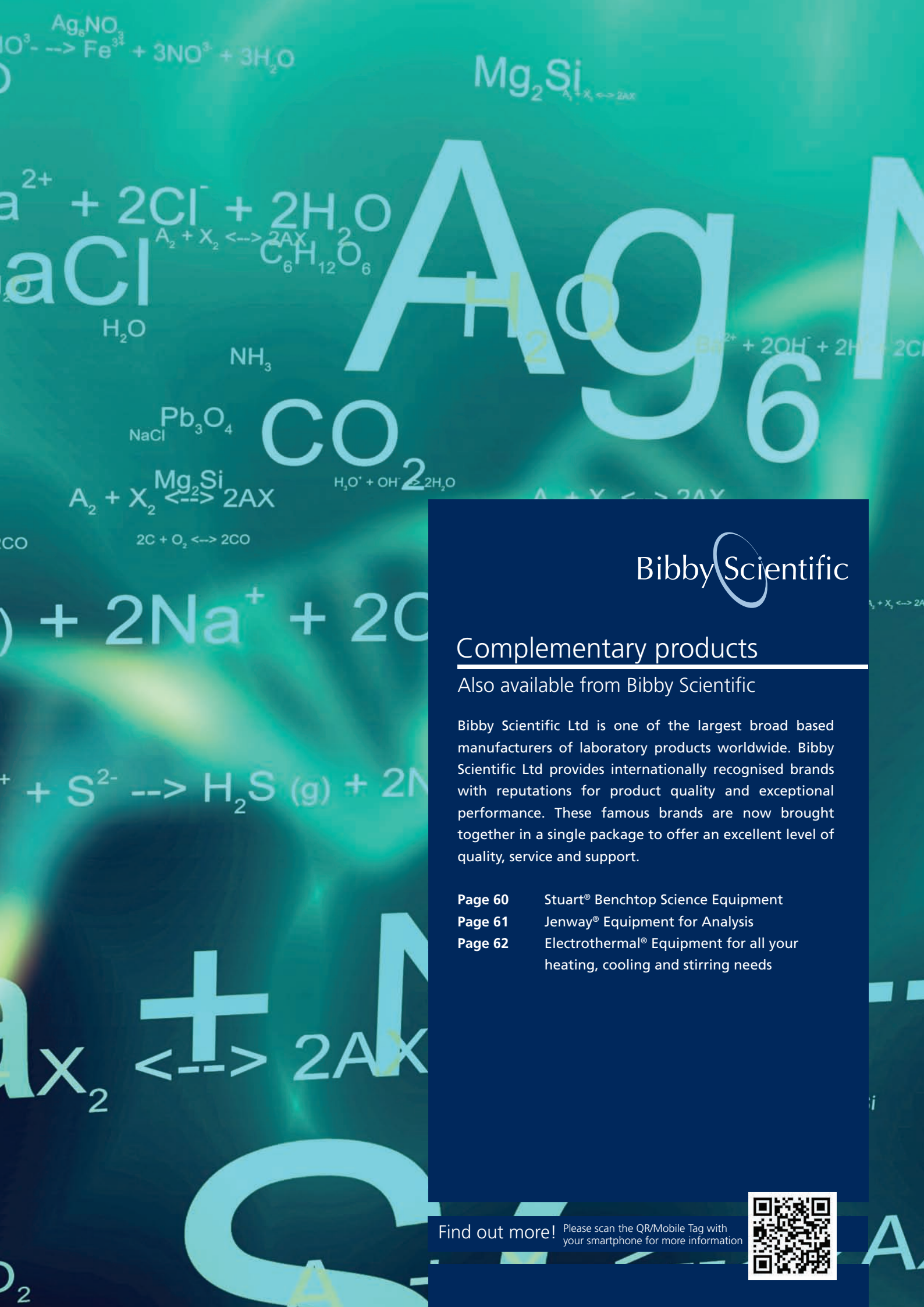
The culture vessels can be sealed for use with pathogenic materials. The stirrer rod design eliminates rotating bearings within the culture vessels, avoiding the difficulties arising from attempts to clean and autoclave conventional vessels. The stirring system uses Pyrex® borosilicate glass culture vessels and stirrer rods which are siliconised to reduce the possibility of cells attaching to and growing on the surfaces. Vessels are available with nominal working volumes of 125ml, 250ml, 500ml, 1 litre. Note that you must order culture vessels to suit your needs; they are not supplied with the MCS platform.

Technical Specification

	125ml	250ml	500ml	1 litre
Filled volume, (ml)	250	500	1000	2000
Nominal working volume, (ml)	125	250	500	1000
Working volume range, (ml)	50 –175	100 –350	200 – 700	500 –1500
Height, (mm)	145	170	205	263
Diameter, (mm)	65	80	100	140
Port size (mm)	14	14	23	33
No. of side necks	2	2	2	2

Ordering Information

Flask size	Complete Culture Vessel	Flask Only	Stirrer Rod Only
125ml	F7988	F7987	6007989
250ml	F7689	F7690	6007635
500ml	F7607	F7609	6007619
1 litre	F7608	F7610	6007620



Bibby Scientific

Complementary products

Also available from Bibby Scientific

Bibby Scientific Ltd is one of the largest broad based manufacturers of laboratory products worldwide. Bibby Scientific Ltd provides internationally recognised brands with reputations for product quality and exceptional performance. These famous brands are now brought together in a single package to offer an excellent level of quality, service and support.

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Complementary products

Also available from Bibby Scientific...

Stuart® Equipment

Benchtop Science Equipment

The Stuart® range of benchtop science equipment includes block heaters, blood tube rotators, colony counters, hotplates, stirrers, rockers and shakers, rotary evaporators and water baths. Stuart® are also market leaders in melting point apparatus and water stills. The entire range is protected by BioCote® antimicrobial protection.

Block Heaters
Suitable for microbiology and clinical laboratories

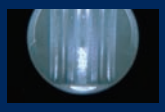
Centrifuges
Mini centrifuge range

Colony Counter
Ideal for all microbiology applications

Homogenisers
Designed for the homogenisation of material

Hotplates and Stirrers
Available with metal or ceramic surfaces

Incubators
For accurate temperature controlled applications



Melting Point Apparatus
Determine high accuracy melting points

Mixers
For sample agitation within the laboratory

Rotary Evaporators
Commonly used for separating solvents

Rockers and Shakers
Available in orbital, linear, gyratory and see-saw actions

Water Baths and Purification
6, 15 and 24L capacity water baths

www.stuart-equipment.com

Complementary products

Also available from Bibby Scientific...

Jenway® Equipment

JENWAY

Equipment for Analysis

The extensive range of Jenway high quality scientific and analytical instrumentation includes visible and UV/Visible spectrophotometers, flame photometers, colorimeters, portable and laboratory meters for the measurement of dissolved oxygen, pH, conductivity and specific ions.

Colorimeters

Ideal for routine basic colour measurements

Conductivity meters

Ranging from portable to advanced laboratory meters

Dissolved oxygen meters

Standard method used in water quality analysis

Flame photometers

Accurate analytic method for determining certain ion concentrations

Fluorimeters

Advanced fluorescence detection

Ion meters

Accurately determine low concentrations

pH meters

Ranging from portable to advanced laboratory meters

Spectrophotometers

Spectroscopy is one of the most established techniques used to identify the presence and concentration of many molecular entities. Jenway have four ranges of visible and UV/visible spectrophotometers, designed to suit a wide range of budgets.

Complementary products

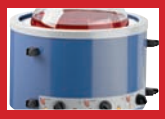
Also available from Bibby Scientific...

Electrothermal

Electrothermal® Equipment

Equipment for heating, cooling and stirring

Electrothermal are the newest addition to the Bibby Scientific portfolio and are market leaders in heating mantle design and manufacture. The extensive Electrothermal range includes controlled, stirring, Bunsen and spill-proof mantles in various shapes and capacities. Alongside the heating mantle range, Electrothermal offer an extensive selection of stirrers and melting point apparatus.



CMU Controlled Mantles
Chemical-resistant, lightweight and easy to clean

EM Heating Mantles
Maximum heat transfer with minimum risk

Extraction Heaters
Vented case's unique air flow ensures the case remains constantly cooled.

Heating Cords and Tapes
Offering tube insulation and protection.

Melting Points
Determine high accuracy melting points.

Kjeldahl Equipment
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TECHNE

Technical Information

Equipment for the Life Sciences

Techne® have a dedicated Technical Support team who are on hand to help with any applications advice and questions you may have about our products and how to use them. The team is made up of experienced laboratory scientists whose backgrounds include chemistry, biochemistry, cell and molecular biology. There are two fully equipped laboratories which are used for developing applications, testing new products and assisting with customer protocols.

Find out more! Please scan the QR/Mobile Tag with your smartphone for more information

Service and repair

service@bibby-scientific.com

Our dedicated service staff are on hand to help in the unlikely event that your Techne® equipment develops a fault. Please contact them by one of the following means with a clear description of the problem:

E-mail: service@bibby-scientific.com
Tel: +44 (0) 1785 810475
Fax: +44 (0) 1785 810471

On occasion it may be necessary for your equipment to be sent back to our Service Department for repair. In this case please contact the Service Department for a reference number which you should include with your faulty equipment. Please also ensure you include a clear description of the fault and a completed copy of our Decontamination Certificate. This is available as a downloadable pdf file at www.techne.com, or contact us and we will be happy to fax you a copy. Please clearly mark the package for the attention of the Service Department and post to the following address:

Service Department
Bibby Scientific Ltd
Beacon Road, Stone
Staffordshire, ST15 0SA

All replacement parts are guaranteed for 1 year and where ever possible, returned equipment is turned around in 5 working days. Please contact our Service Department for further information on onsite repairs and equipment calibration services.

Technical Support

technehelp@bibby-scientific.com

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Tel: +44 (0)1785 810433
Fax: +44 (0) 1785 810471

Declaration of Conformity

Fluidised Sand Baths,
Model SB-1, SBL-2, SBL-2D, SBS-4

These products comply with the requirements of the EU Directives listed below:

2004/108/EC EMC Directive.
2006/95/EC Low voltage Directive (LVD)

Compliance with the requirements of these Directives is claimed by meeting the following standards:

EN 61326-1:2006 (Electrical Equipment for Measurement, Control and Laboratory use).
EN 61010-1: 2001
(Safety Requirements Electrical Equipment for Measurement, Control and Laboratory use)
EN 61010-2-010: 2003 (Particular Requirements for Laboratory Equipment for Heating of Materials).

Compliance Certificates and Equipment Specification

CE mark affixed '96.

Signed: (Mr S. Marriott)

Date: 6/2/12

Authority: Technical Director
Bibby Scientific Ltd

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2008

This is to certify that:

Bibby Scientific Ltd
Beacon Road
Stone
ST15 0SA
United Kingdom

Holds Certificate No: FM 537326
and operates a Quality Management System which complies with the requirements of ISO 9001:2008 for the following scope:

The design, manufacture and distribution of electronic and electrical science equipment to customer specifications.

For and on behalf of BSI:

Managing Director, BSI EMEA

Originally registered: 10/06/2008 Latest Issue: 06/04/2011 Expiry Date: 06/04/2014

Page: 1 of 1

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An electronic certificate can be authenticated online.
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The British Standards Institution is incorporated by Royal Charter.
BSI (UK) Headquarters: P.O. Box 9000, Milton Keynes MK14 6WT. Tel: 0845 080 9000

CE Conformity

Safety Standards

At Jenway we rigorously test our electrical products against the CE and safety standards in place. In addition, the majority of our products are independently tested by an accredited test house. This is reinforced by comprehensive technical and manufacturing data which is available for inspection upon request. Copies of the Confirmity Certificates may be downloaded from our website www.jenway.com

WEEE & RoHS Regulations

Legislation and Regulations

The Waste Electrical and Electronic Equipment legislation ("the WEEE Regulations Directive 2002/96/EC") is now in force in the UK. The primary purpose of the WEEE directive is the prevention of waste electrical and electronic equipment, and to require the re-use, recycling and other forms of recovery as to reduce such waste disposal to landfill or incineration.

The restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2005 ("the RoHS Regulations Directive 2002/95/EC") have now been passed into UK legislation. The primary purpose of these regulations is to restrict the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) in new electrical and electronic equipment put on the market in the European Union after July 1, 2006. As a responsible manufacturer, Bibby Scientific will comply with such regulation as it affects our products and will continue to promote "clean" environmental manufacturing practices.

ISO9001:2008

Quality Assurance

The Techne® quality assurance system was first approved in 1992, and is currently certified to the International Quality Standard BS EN ISO 9001:2008. This means that Techne® is committed to providing the highest quality products, services and customer satisfaction.

The scope of our certificate No. FM537326 is: Marketing, design, manufacture and service of analytical and electrochemical instrumentation.

Further details of certification may be downloaded from our website: www.techne.com

Thermal Cycling

Technical Information

The Polymerase Chain Reaction (PCR)* is an extremely sensitive technique for amplifying minute amounts of DNA and is used in nearly all molecular biology labs today. PCR is based on the DNA polymerisation reaction and involves the copying of DNA from a specific template using a thermostable DNA polymerase, two primers and deoxynucleotide triphosphates (dNTPs). Primers are short pieces of DNA complementary to the sequence on the DNA strand to be amplified and are used to begin the process of copying a strand of DNA. Extension always begins at the 3' end of the primer with Taq DNA polymerase synthesising exclusively in the 5' to 3' direction.

One PCR cycle consists of the following steps:

1. Denaturation:

Temperatures higher than 92°C are required to separate double-stranded DNA (dsDNA) into single strands. The hydrogen bonds linking the two strands together are routinely weak and break at lower temperatures than the covalent bonds of the individual strands. 95°C for 30 seconds is the standard incubation. For complex templates such as genomic DNA an additional denaturation step of 5-10 minutes is beneficial prior to the cycling.

2. Annealing:

The two primers bind, one to each of the complementary single DNA strands produced during denaturation. Annealing usually takes place between 40°C and 65°C for ~20 seconds, depending on the length and base sequence of the primers. The annealing temperature is estimated from the primer's melting temperature (temperature at which 50% of the dsDNA is "unzipped") minus 5°C. For low concentrations and long primers, the time required for annealing should be extended.

3. Extension:

Once the primers anneal to the complementary DNA sequences, the temperature is raised to approximately 72°C and the enzyme Taq DNA polymerase replicates the strands. Approximately 60 bases are synthesised per second under optimal conditions, so a 2kb fragment requires ~ 60 seconds for extension.

Number of Cycles

At the end of the first cycle there are two new DNA strands, identical to the original target. Every cycle results in a doubling of the number of specific DNA strands. 25-40 cycles are carried out, depending on the number of template molecules in the sample at the start. More than 40 cycles should be avoided as this can lead to the formation of non-specific products. For rare templates nested PCR should be performed using 20-30 cycles with the first set of primers and a further 20-40 cycles with an additional set which bind between the first set of primers.

Buffer

Specially optimised buffer is usually supplied with the enzyme. The 10x buffer normally contains 500mM KCl, 100mM Tris-HCl, pH 8.3 (at 25°C) or 150-200mM (NH4)2SO4 with 500-750mM Tris-HCl, pH 9 (at 25°C), 1-2% Triton® X-100 or 0.1% Tween® and 10-15mM Mg2+ (usually available separately).

dNTPs

dNTPs are the nucleotides that make up DNA: adenine, guanine, cytosine and thymine and are usually known by their first letter i.e. A, T, C and G. dNTPs are used at a final concentration of 20-200µM in a reaction. It is important to note that all nucleotides must be at the same concentration. Mispriming and mis-incorporation of bases occurs if the concentration is too high. If modified nucleotides are used they must be at a higher relative concentration than the unmodified bases due to a lower efficiency of incorporation.

*Polymerse Chain Reaction (PCR) is a process covered by the patents owned by Hoffmann-La Roche.

Primers

Typically, primers are 15-30 bases long, and are designed to bind to a unique DNA region on the template. If the primer is not specific, numerous products are amplified and "ghost" bands appear on the agarose gel. The upstream primer and the downstream primer are designed to have similar melting temperatures. This is based on the number of A and T nucleotides versus G and C nucleotides. A and T are paired by two hydrogen bonds, whereas there are three linking G and C, thus requiring more energy to separate the strands. Primers should not bind to themselves or the other primer as these result in primer dimers which appear as low molecular weight bands. Today, primers are designed using computer programs to optimise features such as GC content and melting temperatures.

Magnesium

Magnesium is a co-factor for DNA polymerases and the amount required (0.5 - 3.5mM) is template specific. If the concentration is too high non-specific fragments are amplified, too low and the annealing efficiency and synthesis rate of Taq DNA polymerase are reduced.

DNA Polymerase

Taq DNA polymerase is an enzyme from the organism Thermus aquaticus, and unlike normal polymerase enzymes it is active at high temperatures. 1 unit of Taq is normally required for a 50µl PCR reaction. If the concentration is too high reduced specificity results and if too low, reduced efficiency.

There are many variations on the standard Taq DNA polymerase:

- Proofreading enzymes check the newly synthesised DNA with a 3'-5' exonuclease activity. Enzymes such as Pfu, which possess this activity, reduce the error rate of 1 in 105 bases when Taq is used to that approaching 1 in 108 bases. Proofreading is normally used during cloning of genes to ensure that no errors are introduced into the sequence.
- PCR beads and "ready-to-go" master mixes contain all the reaction components, only template and primers need to be added, thus simplifying reaction set-up.
- Hot start Taq is only activated during the first denaturation step, so preventing extension from any non-specific priming that may have occurred during PCR set-up.

The single most important factor is the annealing temperature. Development of gradient thermal cyclers has solved this time-consuming optimisation and reduced the amount of time, reagents and template required. A gradient of temperatures is set across the block around the predicted annealing temperature. The set temperature is the temperature required in the middle columns of the block and the gradient is the variation at the two extremes of the block; the left hand columns being the coolest and the right hand columns the hottest.

Contamination of the reaction is probably the second most common problem. As the PCR is extremely sensitive it is easy to introduce non-specific contamination into the reaction at any stage. The following guidelines should help to eliminate errors:

- Use RNase, DNase-free reagents and disposables
- Use filter or positive displacement tips
- Perform PCR set-up and analysis by gel electrophoresis separate areas
- Change gloves regularly
- Use master mixes to set up reactions
- Use positive and negative controls wherever possible

DNA Codons

Technical Information

First Position	T	C	Second Position A	G	Third Position
T	TTT Phe (F)	TCT Ser (S)	TAT Tyr (Y)	TGT Cys (C)	T
	TTC Phe (F)	TCC Ser (S)	TAC Tyr (Y)	TGC Cys (C)	C
	TTA Leu (L)	TCA Ser (S)	TAA Ter (stop)	TGA Ter (stop)	A
	TTG Leu (L)	TCG Ser (S)	TAG Ter (stop)	TGG Trp (W)	G
C	CTT Leu (L)	CCT Pro (P)	CAT His (H)	CGT Arg (R)	T
	CTC Leu (L)	CCC Pro (P)	CAC His (H)	CGC Arg (R)	C
	CTA Leu (L)	CCA Pro (P)	CAA Gln (Q)	CGA Arg (R)	A
	CTG Leu (L)	CCG Pro (P)	CAG Gln (Q)	CGG Arg (R)	G
A	ATT Ile (I)	ACT Thr (T)	AAT Asn (N)	AGT Ser (S)	T
	ATC Ile (I)	ACC Thr (T)	AAC Asn (N)	AGC Ser (S)	C
	ATA Ile (I)	ACA Thr (T)	AAA Lys (K)	AGA Arg (R)	A
	ATG Met (M)	ACG Thr (T)	AAG Lys (K)	AGG Arg (R)	G
G	GTT Val (V)	GCT Ala (A)	GAT Asp (D)	GGT Gly (G)	T
	GTC Val (V)	GCC Ala (A)	GAC Asp (D)	GGC Gly (G)	C
	GTA Val (V)	GCA Ala (A)	GAA Glu (E)	GGA Gly (G)	A
	GTG Val (V)	GCG Ala (A)	GAG Glu (E)	GGG Gly (G)	G

IUB Coding

Technical Information

IUB Coding for 2 possible bases		IUB Coding for 3 possible bases		IUB Coding for 4 possible bases	
M	A and C	V	A and G and C	N	A and T and G and C
R	A and G	H	A and C and T		
W	A and T	D	A and G and T		
S	G and C	B	G and T and C		
Y	C and T				
K	G and T				

Spectrophotometric Quantitation of Nucleic Acids

Technical Information

Spectrophotomeric Conversions: A260 = 1 (1cm detection path)	Concentration (µg/ml in water)
dsDNA	50
ssDNA	33
ssRNA	40
Oligonucleotide	20 - 30

Pure DNA has an A260/A280 ratio of 1.8-2.0 in 10mM Tris-Cl, pH 8.5
Pure RNA has an A260/A280 ratio of 1.9-2.1 in 10mM Tris-Cl, pH 7.5

Electrophoretic Analysis of DNA Fragments

Technical Information

% Agarose	Optimal Size of Fragments (bp)
0.5	1,000 – 30,000
0.7	800 – 12,000
1.0	500 – 10,000
1.2	400 – 7,000
1.5	200 – 3,000
2.0	50 – 2,000

Physical Constants

Technical Information

Constant	Symbol	Value	Unit
Atomic mass unit	m_u	1.660540×10^{-27}	kg
Avogadro constant	N^A	6.022137×10^{23}	mol^{-1}
Bohr magneton	μ_B	9.274015×10^{-24}	JT^{-1}
Bohr radius	a_o	5.291771×10^{-11}	m
Boltzmann constant	k_B	1.380662×10^{-23}	JK^{-1}
Compton wavelength (e)	λ_{Ce}	2.426311×10^{-12}	m
Compton wavelength (n)	λ_{Cn}	1.319591×10^{-15}	m
Compton wavelength (p)	λ_{Cp}	1.321410×10^{-15}	m
Electric field constant in vacuo	λ_o	8.854188×10^{-12}	Fm^{-1}
Electron radius	r_e	2.817941×10^{-15}	m
Elementary charge	e	1.602177×10^{-19}	C
Faraday constant	F	9.648531×10^{4}	$Cmol^{-1}$
Fine structure constant	α	7.297353×10^{-3}	
Gas constant	R	8.31451	$J\ mol^{-1}K^{-1}$
Gravitation constant	G	6.672590×10^{-11}	$Nm^{-2}kg^{-2}$
Intrinsic impedance	r	3.767301×10^{2}	Ω
Light velocity in vacuo	c	2.997924×10^{8}	ms^{-1}
Loschmidt constant	n_o	2.686763×10^{25}	m-3
Magnetic field constant in vacuo	μ_0	1.256637×10^{-7}	Hm^{-1}
Molar volume of ideal gases			
298K, 101.325kPa	υ	2.445294×10^{-2}	m^3mol^{-1}
Normal acceleration of fall	g	9.80665	ms^{-2}
Planck constant	h	6.626075×10^{-34}	Js
Rest mass of the electron	me	9.109390×10^{-31}	kg
Rest mass of the neutron	mn	1.674929×10^{-27}	kg
Rest mass of the proton	mp	1.672623×10^{-27}	kg
Rational quantum	h/(2π)	1.054588×10^{-34}	Js
Rydberg constant	R_∞	1.097373×10^{7}	m^{-1}

Solvent Properties

Technical Information

IUPAC Name	Common Name	Boiling point (°C) at 1013 mbar pressure	Pressure (mbar) which b.p is 40°C
2-propanone	Acetone	56	556
1-pentanol	Pentyl alcohol	137	11
Benzene	Benzene	80	236
1-butanol	Butyl alcohol	118	25
2-methyl-2-propanol	Tert-butyl alcohol	83	130
Chlorobenzene	Chlorobenzene	132	36
Chloroform	Trichloromethane	61	474
Cyclohexane	Cyclohexane	81	235
Ethoxyethane	Diethyl ether	35	Atmospheric
1,2-dichloroethane	Ethylene chloride	83	210
1,2-dichloroethene	Cis-acetylene dichloride	60	479
1,2-dichloroethene	Trans-acetylene dichloride	48	751
2-propan-2-yloxypropane	Isopropyl ether	68	375
1,4-Dioxane	Diethylene oxide	101	107
N,N-Dimethylformamide	Dimethylformamide (DMF)	153	11
Acetic acid	Ethanoic acid	118	44
Ethanol	Alcohol	79	175
Ethyl acetate	Ethyl ester	77	40
Heptane	Dipropylmethane	98	120
Hexane	n-hexane	69	335
Propan-2-ol	Isopropanol	82	137
3-methyl-1-butanol	Isoamyl alcohol	130	14
Butan-2-one	Methylethylketone (MEK)	80	243
Methanol	Methyl alcohol	65	337
Dichloromethane	Methylene chloride	40	Atmospheric
Pentane	Pentane	36	Atmospheric
Propan-1-ol	Propyl alcohol	97	67
1,1,1,2,2-pentachloroethane	Pentachloroethane	162	13
1,1,2,2-tetrachloroethane	Tetrachloroethane	138	35
1,1,1 -trichloroethane	Trichloroethane	75	271
Tetrachloromethane	Carbon tetrachloride	76	300
1,1,2,2-tetrachloroethene	Tetrachloroethylene	121	53
Oxolane	Tetrahydrofuran (THF)	67	357
Toluene	Methylbenzene	111	77
1,1,2-trichloroethene	Trichloroethylene	87	183
Oxidane	Water	100	72
Dimethylbenzene	Xylene (mixed)	137	25
1,2-dimethylbenzene	o-xylene	144	34
1,3-dimethylbenzene	m-xylene	139	25
1,4-dimethylbenzene	p-xylene	138	31

SI Base Units

Technical Information

Quantity	Name of Base Unit	Unit Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Amount of substance	mole	mol
Luminous intensity	candela	cd

SI Derived Units

Technical Information

Quantity Units	Unit Name	Unit Symbol	Expression in terms of SI base
Force	newton	N	$m\ kg\ s^{-2}$
Energy	joule	J	$m^2\ kg\ s^{-2}$
Power	watt	W	$m^2\ kg\ s^{-3}$
Pressure, stress	pascal	Pa	$m^{-1}\ kg\ s^{-2}$
Electric potential	volt	V	$m^2\ kg\ s^{-3}\ A^{-1}$
Electric charge	coulomb	C	s A
Electric flux	coulomb	C	s A
Magnetic flux	weber	Wb	$m^2\ kg\ s^{-2}\ A^{-1}$
Magnetic flux density	tesla	T	$kg\ s^{-2}\ A^{-1}$
Electric resistance	ohm	Ω	$m^2\ kg\ s^{-3}\ A^2$
Capacitance	farad	F	m^{-2} kg-1 s4 A^2
Inductance	henry	H	$m^2\ kg\ s^{-2}\ A^{-2}$
Celsius temperature	degree Celsius	°C	K
Frequency	hertz	Hz	s-1
Luminous flux	lumen	lm	cd sr
Illuminance	lux	lx	m^{-2} cd sr
Activity (of a radionuclide)	becquerel	Bq	s^{-1}
Absorbed dose	gray	Gy	$m^2\ s^{-2}$
Dose equivalent	sievert	Sv	$m^2\ s^{-2}$
Torque	newton metre	Nm	$m^2\ kg\ s^{-2}$
Electric field strength	volt per metre	V/m	m kg s-3 A^{-1}
Magnetic field strength	ampere per metre	A/m	m-1 A
Thermal conductivity	watt per metre kelvin	$W\ m^{-1}\ k^{-1}$	$m\ kg\ s^{-3}\ K^{-1}$
Luminance	candela per square metre	cd/m^2	m^{-2}cd

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