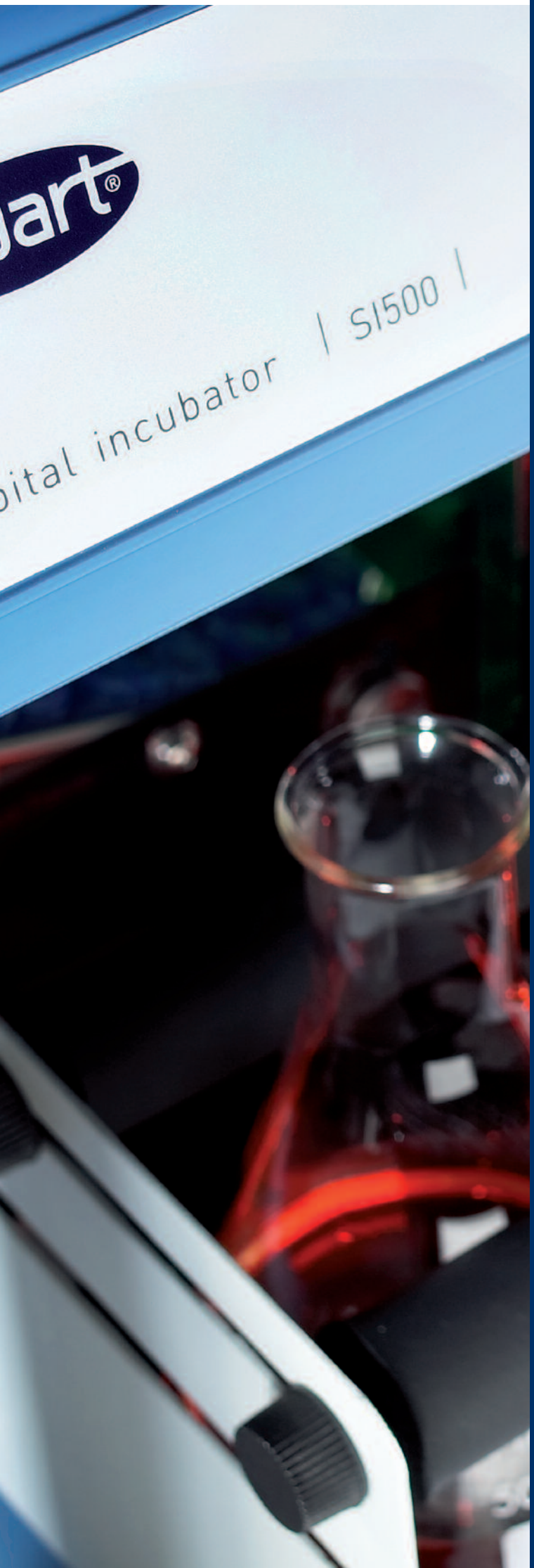


Incubators

Stuart® has a number of incubators specially designed for accurate and reproducible temperature controlled applications. All incubators have state of the art microprocessor detection, setting and control of temperature.

Page 40 - Introduction
Page 41 - Microtite plate incubator
Page 42 - Hybridisation incubator and shaker
Page 43 - Hybridisation bottles
Page 44 - Incubator with orbital shaker
Page 46 - Total visibility Incubator

Incubators

Stuart® has a number of incubators specially designed for accurate and reproducible temperature controlled applications. All incubators have state of the art microprocessor detection, setting and control of temperature. This allows for maximum:

Accuracy: The set temperature is accurately reflected in the actual temperature inside the incubator. The latter is continuously monitored via a thermocouple and if it deviates from the set (e.g. If the door is opened) the energy to the heater is precisely regulated to adjust the actual temperature back to the set point, without overshoot.

Uniformity: It is important that the temperature within the incubator chamber is as uniform as possible so that all samples are subjected to the same conditions. This is achieved by forced air circulation. A fan continuously moves the warm air around the incubator chamber in order to achieve homogeneous conditions.

Stability: Incubators are generally left on for long periods of time. The microprocessor ensures that, once stabilised, the temperature within the incubator chamber remains stable, even when the external ambient temperature varies. This ensures long-term reproducible results.

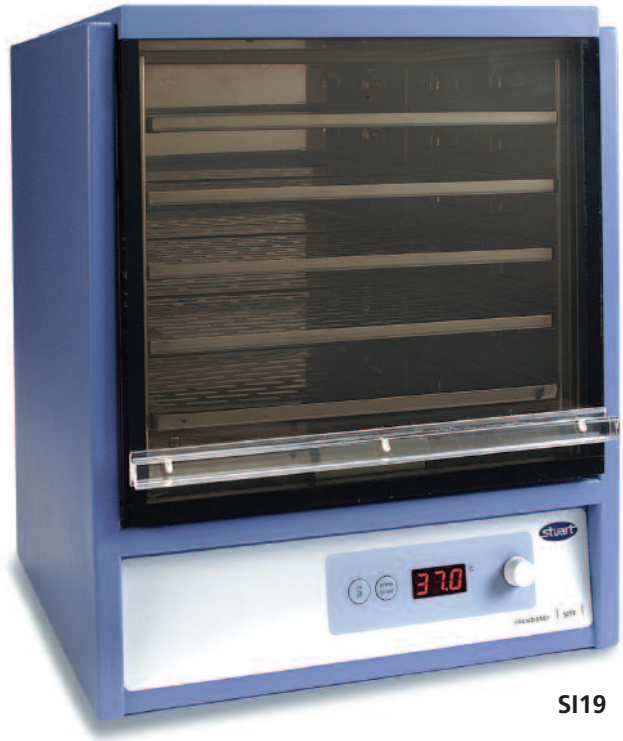
Resolution: The result of outstanding accuracy, uniformity and stability means a display resolution of 0.1°C is found on all Stuart® incubators. This means that the chamber temperature can be set to one-tenth of a degree.

Models within the Stuart® range include:

- Benchtop incubator specifically designed for warming microtitre plates, details on page 41
- Hybridisation incubator for blotting techniques, details on pages 42 to 43
- Completely transparent acrylic incubators designed for a variety of germination and general incubation applications, details on page 46
- The SI500 shaking incubator with built-in orbital shaker. Details on pages 44 - 45.

Incubator, for microtitre plates, SI19

- Compact unit
- Ideal for microtitre plates and petri dishes
- Laminar flow air circulation
- Digital setting and display of temperature
- Convenient upward opening door
- Stainless steel interior



SI19

Specially designed for use with microtitre plates, which can be difficult to incubate. In conventional incubators, when 4 or more plates are placed on a shelf, they block the air circulation, which can seriously impair temperature distribution.

The Stuart® SI19 Incubator overcomes this problem with forced air circulation, which blows preheated air across the shelves rather than just through them. Microtitre plates are also prone to drying out during incubation. The SI19 overcomes this with a water tray to increase the humidity within the chamber.

The bright LED display indicates temperature and the encoder control allows rapid and accurate temperature setting. An integral over-temperature protection system automatically tracks the set temperature and controls the heater in the event of a fault. Error codes are displayed if a fault has occurred or if the set temperature has been interrupted.

An acrylic upwards opening door provides excellent access to the interior. The stainless steel chamber features 4 shelves each accommodating 6 plates (or 12 stacked in 2 layers). Shelves are captive and slide out for easy loading.

SI19

Technical Specification

	SI19
Nominal capacity	20 litres
Temperature range	Ambient + 8°C to 80°C
Temperature fluctuation (at 37°C)	±0.5°C
Temperature variation	±0.5°C
Display type	LED
Display resolution	0.1°C
Internal dimensions, mm (w x d x h)	250 x 230 x 200
Overall dimensions, mm (w x d x h)	380 x 380 x 435
Net weight, kg	24
Electrical supply	230V, 50Hz, 280W
IP Rating	30

Ordering Information

Model	Description
SI19	Incubator, microtitre plate

Hybridisation, incubator & shaker, SI30H

- Compact design
- Rotisserie and rocker in one unit
- Up and over door for accessibility
- Accurate temperature control
- Advanced safety features
- Variable speed control

A very versatile 20 litre hybridisation incubator and combined rocker shaker which only requires a minimum of bench space. The incubator temperature is accurately set via the easy to use encoder controls and displayed by a bright LED. Forced air circulation combined with microprocessor control means outstanding temperature uniformity.

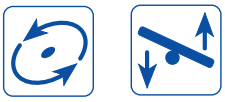
The 'safety first' design includes an over-temperature protection system that automatically tracks the set temperature and controls the heater in the event of a fault. The smart system displays error codes indicating a fault has occurred or if the set temperature has been interrupted. The incubator also cuts power to the motor if it overheats or stalls.

The incubator has a stainless steel interior, whilst the door is constructed from a double glazed panel of smoked acrylic and polycarbonate to provide radiation protection. The 'up and over' door mechanism gives excellent access to the incubator.

The SI30H is supplied with a rotisserie that accepts 7 x 40mm diameter bottles. It rotates at speeds variable between 2 and 10rpm inside the incubator. It also acts as a bottle stand when removed from the incubator. Accessory rotisseries are available to hold 2 x 75mm diameter glass bottles. Conversion of the unit to a rocker shaker is fast and easy. Simply remove the rotisserie and pull forward the platform located at the rear of the incubator.

The gentle rocking action is ideal for the washing stage of most hybridisation procedures. Rocking speed is fully variable allowing optimisation depending on application. A range of hybridisation bottles are available made from tough Pyrex® glass and leak proof PTFE faced screwcaps (see page opposite).

SI30H



SI30H

Technical specification

	SI30H
Nominal capacity	20 litres
Temperature range	Ambient + 8°C to 80°C
Temperature fluctuation (at 37°C)	±0.1°C
Temperature variation	±0.5°C
Display type	LED
Display resolution	0.1°C
Number of rotisseries	1
Rotational speed range	2 to 10rpm
Rocker speed range	5 to 70 oscillations / minute
Internal dimensions, mm (w x d x h)	286 x 230 x 200
Overall dimensions, mm (w x d x h)	380 x 380 x 435
Net weight, kg	24
Electrical supply	230V, 50Hz, 350W
IP Rating	30

Ordering information

Model	Description
SI30H	Hybridisation incubator / shaker supplied with 1 x rotisserie SI20H/1
SI20H/1	Spare rotisserie for 7 x 40mm diameter bottles (holds 6 plus 1 in the centre)
SI20H/2	Accessory rotisserie for 2 x 75mm diameter bottles

SI20H/3 SI20H/4 SI20H/5

Hybridisation bottles

Bottle hybridisation minimises probe volumes, reduces reagent volumes and enhances signal intensity.

Made from Pyrex® borosilicate glass Stuart® hybridisation bottles are robust and can easily withstand the temperatures of the most rigorous hybridisation techniques. The thermoplastic polyester caps are very rigid and will not distort during repeated heating in the incubator which can lead to leakage. The seal is made by a PTFE faced insert that covers the entire inside of the cap making very good contact with the glass thread.

Available in three sizes, each bottle comes complete with cap and a care leaflet.

Technical specification and ordering information

Model	Overall length	O.D.	I.D	Wall thickness
SI20H/3	260mm	40mm	33.6mm	3.2mm
SI20H/4	260mm	75mm	68.6mm	3.2mm
SI20H/5	170mm	40mm	33.6mm	3.2mm

Hybridisation, incubator & shaker, SI30H

- Compact design
- Rotisserie and rocker in one unit
- Up and over door for accessibility
- Accurate temperature control
- Advanced safety features
- Variable speed control

A very versatile 20 litre hybridisation incubator and combined rocker shaker which only requires a minimum of bench space. The incubator temperature is accurately set via the easy to use encoder controls and displayed by a bright LED. Forced air circulation combined with microprocessor control means outstanding temperature uniformity.

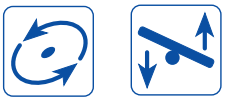
The 'safety first' design includes an over-temperature protection system that automatically tracks the set temperature and controls the heater in the event of a fault. The smart system displays error codes indicating a fault has occurred or if the set temperature has been interrupted. The incubator also cuts power to the motor if it overheats or stalls.

The incubator has a stainless steel interior, whilst the door is constructed from a double glazed panel of smoked acrylic and polycarbonate to provide radiation protection. The 'up and over' door mechanism gives excellent access to the incubator.

The SI30H is supplied with a rotisserie that accepts 7 x 40mm diameter bottles. It rotates at speeds variable between 2 and 10rpm inside the incubator. It also acts as a bottle stand when removed from the incubator. Accessory rotisseries are available to hold 2 x 75mm diameter glass bottles. Conversion of the unit to a rocker shaker is fast and easy. Simply remove the rotisserie and pull forward the platform located at the rear of the incubator.

The gentle rocking action is ideal for the washing stage of most hybridisation procedures. Rocking speed is fully variable allowing optimisation depending on application. A range of hybridisation bottles are available made from tough Pyrex® glass and leak proof PTFE faced screwcaps (see page opposite).

SI30H



SI30H

Technical specification

	SI30H
Nominal capacity	20 litres
Temperature range	Ambient + 8°C to 80°C
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Display type	LED
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Overall dimensions, mm (w x d x h)	380 x 380 x 435
Net weight, kg	24
Electrical supply	230V, 50Hz, 350W
IP Rating	30

Ordering information

Model	Description
SI30H	Hybridisation incubator / shaker supplied with 1 x rotisserie SI20H/1
SI20H/1	Spare rotisserie for 7 x 40mm diameter bottles (holds 6 plus 1 in the centre)
SI20H/2	Accessory rotisserie for 2 x 75mm diameter bottles

SI20H/3 SI20H/4 SI20H/5

Hybridisation bottles

Bottle hybridisation minimises probe volumes, reduces reagent volumes and enhances signal intensity.

Made from Pyrex® borosilicate glass Stuart® hybridisation bottles are robust and can easily withstand the temperatures of the most rigorous hybridisation techniques. The thermoplastic polyester caps are very rigid and will not distort during repeated heating in the incubator which can lead to leakage. The seal is made by a PTFE faced insert that covers the entire inside of the cap making very good contact with the glass thread.

Available in three sizes, each bottle comes complete with cap and a care leaflet.

Technical specification and ordering information

Model	Overall length	O.D.	I.D	Wall thickness
SI20H/3	260mm	40mm	33.6mm	3.2mm
SI20H/4	260mm	75mm	68.6mm	3.2mm
SI20H/5	170mm	40mm	33.6mm	3.2mm

Incubator with orbital shaker, SI500

- Combined incubator shaker
- Digital display for temperature and speed
- Integrated timer
- Unique retractable platform for easy loading and unloading
- Angle adjustable accessory tube racks, with patent pending Magnalock coupling system available
- Communications enabled for external temperature measurement

This combined shaker and incubator is ideal for scientists doing cell culturing procedures, especially suspension culture applications. It is compact enough to be positioned on the laboratory bench.

The shaker provides an orbital shaking motion, adjustable between 30 to 300rpm with a gentle start action. The shaking speed is microprocessor controlled and set via the digital LED control panel. The incubator also incorporates a versatile digital timer which can be set from 1 second to 9 days. After the timer has counted down the shaking action will stop and an alert will sound, as a safety feature the incubator will continue to run.

The incubator features smoked acrylic windows in the door and to both sides to allow easy visibility of the samples. The incubator temperature is set via a separate bright LED display, encoder control ensures that the temperature can be quickly set between ambient temperature +5°C and 60°C. Forced air circulation ensures uniform heating of the load.

The SI500 platform has a versatile clamping system which secures most sizes and mixtures of flask up to 1 litre capacity. Typically, the platform will accommodate the following Erlenmeyer flasks:
12 x 250 ml, or 9 x 500 ml or 6 x 1000 ml.

The incubator features smoked acrylic windows in the door and to both sides to allow easy visibility of the samples.

The unit features a retractable platform. Under normal use the platform is locked in place but whilst accessing your samples the platform can be drawn forward out of the chamber to allow easiest access to samples at the back of the incubator.

The SI500 also features a USB connection and dedicated software to enable long term monitoring of the incubator temperature, i.e. over weekends.

A wide range of stainless steel accessory racks are available to hold 1.5ml, 15ml, 30ml and 50ml sample tubes, the angle of the tubes can be adjusted up to 30°. Accessory racks are held to the orbiting platform by a patent pending Magnalock system, allowing quick coupling and de-coupling without tools.

SI500

SI500/2

SI500/3

SI500/1

SI500

SI500

Technical Specification

	SI500
Temperature range	Ambient + 5°C to 60°C
Temperature display resolution	0.1°C
Temperature precision	± 0.5°C
Temperature fluctuation	± 0.5°C
Temperature variation	<0.5°C
Speed range	30 to 300rpm
Orbit diameter, mm	16
Platform size, mm	335 x 335
Internal dimensions, mm (w x d x h)	422 x 408 x 297
Maximum vessel height, mm	250
Maximum load, kg	10
Overall dimensions, mm (w x d x h)	450 x 474 x 522
Net weight, kg	30
Heater power, W	250
Electrical supply	230V, 50Hz, 300W
IP Rating	31

Ordering Information

Model	Description
SI500	Incubator, orbital shaker
SI500/1	Tube rack, 1.5ml x 64 microtubes
SI500/2	Tube rack, 15ml x 25 centrifuge tubes
SI500/3	Tube rack, 50ml x 12 centrifuge tubes
SI500/4	Tube rack, 16 x 30ml Universal containers

Incubator with orbital shaker, SI500

- Combined incubator shaker
- Digital display for temperature and speed
- Integrated timer
- Unique retractable platform for easy loading and unloading
- Angle adjustable accessory tube racks, with patent pending Magnalock coupling system available
- Communications enabled for external temperature measurement

This combined shaker and incubator is ideal for scientists doing cell culturing procedures, especially suspension culture applications. It is compact enough to be positioned on the laboratory bench.

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A wide range of stainless steel accessory racks are available to hold 1.5ml, 15ml, 30ml and 50ml sample tubes, the angle of the tubes can be adjusted up to 30°. Accessory racks are held to the orbiting platform by a patent pending Magnalock system, allowing quick coupling and de-coupling without tools.

SI500

SI500/2

SI500/3

SI500/1

SI500

SI500

Technical Specification

	SI500
Temperature range	Ambient + 5°C to 60°C
Temperature display resolution	0.1°C
Temperature precision	± 0.5°C
Temperature fluctuation	± 0.5°C
Temperature variation	<0.5°C
Speed range	30 to 300rpm
Orbit diameter, mm	16
Platform size, mm	335 x 335
Internal dimensions, mm (w x d x h)	422 x 408 x 297
Maximum vessel height, mm	250
Maximum load, kg	10
Overall dimensions, mm (w x d x h)	450 x 474 x 522
Net weight, kg	30
Heater power, W	250
Electrical supply	230V, 50Hz, 300W
IP Rating	31

Ordering Information

Model	Description
SI500	Incubator, orbital shaker
SI500/1	Tube rack, 1.5ml x 64 microtubes
SI500/2	Tube rack, 15ml x 25 centrifuge tubes
SI500/3	Tube rack, 50ml x 12 centrifuge tubes
SI500/4	Tube rack, 16 x 30ml Universal containers

Incubator, total visibility, SI60 & SI60D

- Full visibility of samples
- Easy access to working chamber
- Many applications:
  - Plant propagation
  - Humidity tests
  - Simulation of tropical conditions
  - Incubation of complete instruments
  - Corrosion testing
- Choice of analogue or digital control

Constructed from clear Acrylic® polymer to give total visibility of samples at all times.

Designed for easy access with hinged front door panel. Each side panel has 2 x 10mm diameter plugged holes for the introduction of either gases or cables. The incubator does not have a base so that it can be placed directly over complete instruments (base is available as an accessory). Forced air circulation and electronic temperature control ensure accurately maintained conditions.

For analogue model SI60, setting the temperature is via a calibrated knob. For digital model SI60D, setting the temperature is more accurately achieved via the LCD display. The latter also gives a constant reading of actual temperature. Both models have a push switch pre-set at 37°C. Additionally there is a temperature safety cut-out set at 72°C.

The incubator is supplied flat packed, for assembly at point of use. Assembly is simple and requires only a screwdriver.

SI60

SI60D & SI60/2

Technical Specification

	SI60 & SI60D
Temperature range	Ambient +5°C to 60°C
Temperature fluctuation at 37°C	±0.1°C
Temp. variation between shelves	±0.3°C
Nominal volume	60 litres
Internal dimensions, mm (w x d x h)	450 x 380 x 380
Overall dimensions, mm (w x d x h)	600 x 390 x 390
Net weight, kg	11.2
Electrical supply	230V, 50Hz, 350W
IP Rating	30

Ordering Information

Model	Description
SI60	Incubator, total visibility, analogue
SI60D	Incubator, total visibility, digital
SI60/1	Acrylic® base plate
SI60/2	Plastic coated shelf/rack system with two shelves