TORREY PINES SCIENTIFIC, INC.

IN30/IN40   Chilling Incubators

HS50   Digital Hot Plates

HS10   Analog Hot Plates

IC20   Chilling/Heating Dry Baths

HS19   Multi-Stirring Hot Plates

IC22   2-Station Chilling/Heating Dry Bath

CB20   Mini Circulators

CO30   Chilling HPLC Column Ovens

HS40   Programmable Hot Plates

Temperature Control Specialists

EchoTherm™ Programmable, Digital and Analog Chilling and Heating Laboratory Equipment

About Us

At Torrey Pines Scientific, Inc. we design, develop, manufacture and sell chilling and heating laboratory equipment with analog and digital controls for use in the biotech, pharmaceutical, environmental, chemical, biomedical and other laboratories.

Torrey Pines Scientific, Inc. was founded in 1995 in Solana Beach, California, twenty miles north of San Diego, the west coast capital of the biomedical industry. We are a manufacturing company whose principals have over 50 years experience in designing and manufacturing high quality, unique analog and digital chilling and heating equipment. New products and new applications for existing products are being developed continuously by our marketing and engineering staffs to make your laboratory job easier. We are dedicated to excellence and innovation, and we take pride in our superior customer service. All our products are made in the USA and will be certified by UL, CSA and CE or equivalent agencies for safety.

Where To Order

We sell through some of the finest stocking distributors in the USA and around the world. These distributors are trained to sell and service our products. You can order directly from them, or you can order from us. You can call, fax, or e-mail us directly to order or to find the distributor closest to you. For ordering information outside the USA please contact us for the distributor in your country.

We accept orders by VISA and MASTERCARD as well as company purchase orders.

How To Reach Us

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About Peltier Technology

Many of our products are based on Peltier technology to heat and chill. For those of you not familiar with this technology, we have a brief description here.

Peltier or thermoelectric cooling/heating is semiconductor-based. It has solid-state material in a module that functions as a small heat pump. By applying a low voltage DC power source to the module, heat will be moved through the module from one side to the other. One module face will be cooled while the other face heats. This effect can be reversed by reversing the current flow through the module. Thus the module can be used to heat or chill. We apply this principle to our chilling/heating incubators and chilling/heating dry baths, HPLC column chiller/heater and chilling/heating mini-circulator. They are very efficient and very good at controlling temperature ABOVE, BELOW, and DIRECTLY AT ROOM TEMPERATURE. They have very few moving parts, and no compressors or gases.

Chilling/Heating Incubators

There are 5 models of chilling/heating convection incubators in our product range. All are Peltier-based and have no CFC's or compressors to worry about. They are reliable, accurate and easy to use. Two are fully programmable. Four have temperature ranges from 4.0ºC to 70.0ºC, and all read and regulate temperature to 0.1ºC. Because these units chill and heat they can control temperatures at or near room temperature, and they will hold that temperature regardless of changes in room temperature. All have built-in timers, RS232 I/O ports for recording data or controlling the units by computer, and the programmable models have built-in temperature ramping. They have built-in watchdog circuits and power failure protection that will return the unit to what it was doing when power returns after a power failure. They all share common applications. They are extensively used for growing protein crystals. The chart below will show their features and their differences.

SOME APPLICATIONS

- Protein crystal growth (virtually no vibrations)
- Incubating marine sample below ambient
- Enzyme reactions and deactivations
- Hybridizations
- Ligations at 14.0ºC to 16.0ºC
- Storing oocytes at 17.0ºC
- Culture growth below, above and at room temperature
- Storing DNA libraries

Features — Models

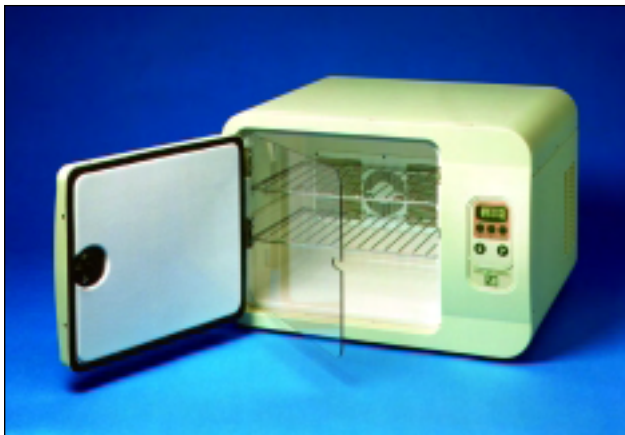| Features	IN30	IN35	IN40	IN45	IN20
Peltier Driven	Yes	Yes	Yes	Yes	Yes
Stores Multistep Programs in Memory	No	Yes	No	Yes	No
Digital Display and Control	Yes	Yes	Yes	Yes	Yes
Temperature Range in Degrees Centigrade	4.0 to 70.0	4.0 to 70.0	4.0 to 70.0*	4.0 to 70.0*	10.0 to 50.0
Temperature Readability	0.1C	0.1C	0.1C	0.1C	0.1C
Temperature Accuracy	0.2C	0.2C	0.2C	0.2C	0.2C
Temperature Stability	0.1C	0.1C	0.1C	0.1C	0.1C
PID Temperature Control	Yes	Yes	Yes	Yes	Yes
Temperature Ramping	No	Yes	No	Yes	No
Chamber Uniformity	0.5C	0.5C	0.5C	0.5C	0.5C
Countdown Timer	99 hours	99 days	99 hours	99 days	30 days
Audible Alarm for Timer	Yes	Yes	Yes	Yes	Yes
Auto Off, User Settable	Yes	Yes	Yes	Yes	Yes
RS232 Port	Yes	Yes	Yes	Yes	Yes
Data Logger Built-In	No	No	No	No	Yes
Chamber Volume	27.5L	27.5L	55L	55L	9.8L
Chamber Height	12″	12″	24″	24″	12″
Chamber Width	14″	14″	14″	14″	6″
Chamber Depth	10″	10″	10″	10″	8″
Operating Voltage	12VDC	12VDC	12VDC	12VDC	12VDC
Number of Shelf Slots	4	4	6	6	6
Number of Shelves Provided	2	2	4	4	6

*When chilling, range is 16.0ºC below ambient max.

Models IN30 and IN40 - Chilling / Heating Incubators

The Models IN30 and IN40 are not programmable. They are simple set-and-forget models. Set the temperature and the unit will go there. To change temperature, simply key-in another target. The units are bench top in size. The IN30 has 27.5 liter capacity and the IN40 has 55 liter capacity. Both have a temperature range from 4.0ºC to 70.0ºC. They have seamless, white ABS plastic chambers with capped holes in the left side of the sheet metal case for routing cords for shakers or tubing for gases. They are provided with a universal power supply that takes input voltages from 100VAC to 265VAC, 50/60Hz and converts that to 12 volts DC for the unit. They come complete with user's manual, 3-wire AC line cord for the country of use, and a full 12 month warranty. The IN30 measures 15.5" (39.4 cm) high x 22.25" (56.5 cm) wide x 18.5" (47 cm) deep and weighs 34 pounds (15.4 kg). The IN40 measures 28.25" (71.75 cm) high x 22.25" (56.5 cm) wide x 18.5" (47 cm) deep and weighs 40 pounds (18 kg). They are UL, CSA, and CE certified.

Models IN35 and IN45 - Fully Programmable Chilling / Heating Incubators

The Models IN35 and IN45 are fully programmable. These units have a 2-line, 16-character per line alphanumeric display showing all parameters when programming and running programs. They can store 3 programs in memory for instant recall and use at any time. Each program has ten steps available where each step is a temperature, time, and temperature ramp rate (if wanted). Steps can be set for running multiple "ramp and soak" cycles, or for just running at one temperature for a given time and then switching automatically to another temperature.

The IN35 has 27.5 liter capacity and the IN45 has 55 liter capacity. Both have a temperature range from 4.0ºC to 70.0ºC. They have seamless, white ABS plastic chambers with a capped hole in the left side of the sheet metal case for routing cords for shakers or tubing for gases. They are provided with a universal power supply which takes inputs from 100VAC to 265VAC, 50/60Hz and converts that to 12 volts

At the end of each program is a "cycle" step which can be set to repeat the prior steps 1 to 99 times. They also can be set to a single temperature without using the program mode just like the IN30 and IN40.

DC for the unit. They come complete with user's manual, 3-wire AC line cord for the country of use, and a full 12 month warranty. The IN35 measures 15.5" (39.4 cm) high x 22.25" (56.5 cm) wide x 18.5" (47 cm) deep and weighs 34 pounds (15.4 kg). The IN45 measures 28.25" (71.75 cm) high x 22.25" (56.5 cm) wide x 18.5" (47 cm) deep and weighs 40 pounds (18 kg). All units are UL, CSA, and CE certified.
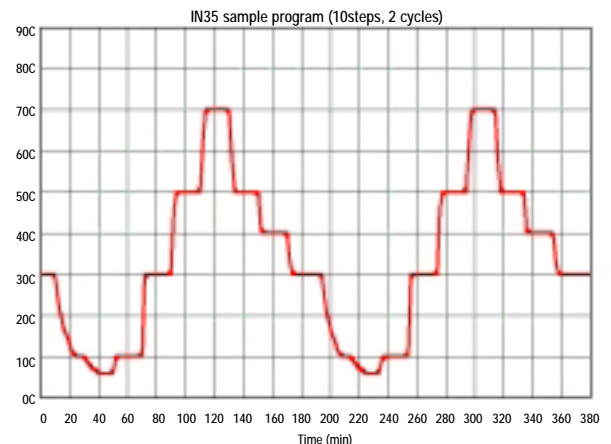
The chart above shows a typical temperature/time profile that can be stored in memory on an IN35 or IN45 and run at any time.

Model IN20 - Transparent Chilling / Heating Incubator

The Model IN20 is a unique Peltier-driven chilling/heating incubator in a number of ways. It is fabricated completely of a light green plastic making it transparent and making the samples visible at all times. It has a temperature range from 10.0ºC to 50.0ºC and controls accurately at or near room temperature and through changes in room temperature. It can hold 12 assay plates on 6 shelves in a very small footprint on the bench, and each shelf is made with holes to hold centrifuge tubes. Two shelves hold 60-1.5ml centrifuge tubes each, two shelves hold 80-0.5ml centrifuge tubes each, and two shelves hold 192-0.2ml PCR tubes or two PCR plates each in two classic 96 well formats per shelf.

The unit has a backlit, 2-line alphanumeric display with 16-characters per line, a built-in 30-day count down timer with alarm and user settable Auto-Off, an RS232 I/O port for data collection and control of the unit by a computer, and a built-in data logger that can collect 4055 data points in 1 second, 1 minute or 5 minute intervals. The unit runs off 12VDC and comes complete with bench top universal power supply that can take inputs from 100 to 260VAC, 50/60 Hz, user's manual, AC line cord for the country of use, and a full 12 month warranty. The IN20 measures 8" (20.3 cm) wide x 14.5" (36.8 cm) deep x 18" (45.7 cm) high and weighs 18 pounds (8.2 kg). It is UL, CSA, and CE compliant.

Model CB20 - Constant Temperature Chilling / Heating Mini Circulator

The Model CB20 is a Peltier-based chilling/heating constant temperature small volume circulator with a temperature range from 4.0ºC to 70.0ºC. It can circulate up to 300 ml/minute of solution from a 1000ml reservoir for controlling the temperature of small remote samples like water-jacketed cuvettes for spectrophotometers. It displays and controls temperature to 0.1ºC. It is accurate to ±0.2ºC. The circulator has a DC operated brushless mini-pump with a variable flow control for pumping exactly the needed amount of temperature-controlled solution for small samples. The unit is very compact, takes very little bench space, and uses very little power. It has a backlit, 2-line alphanumeric display with 16 characters per line that constantly displays target and actual temperature and pumping rate. The membrane switch is used for entering temperature and pump flow rate settings. The unit has an RS232 I/O port for controlling the unit from a computer or for collecting temperature data.

The CB20 is provided with brass Swagelok fittings on the rear of the unit that accepts 1/8th inch I.D., 1/4 inch O.D. plastic tubing. Temperature is sensed with a 3/32 inch diameter stainless steel probe provided. A six-foot long extension for the probe is available as an accessory. The temperature measurement system is 100 ohm platinum RTD for accuracy. Also, included are a 12VDC bench top power supply that takes AC inputs from 100 to 260VAC, 50/60 Hz, user's manual, 3-wire AC line cord for the country of use, and full 12-month warranty. The unit measures 6.5" (16.5 cm) wide x 13.625" (34.6 cm) deep x 7" (17.78 cm) high and weighs 6.5 pounds (2.9 kg). The unit is UL, CSA, and CE compliant.

Chilling/Heating Dry Baths

There are 16 models of digital chilling/heating dry baths and 2 models of analog chilling only dry baths in our product range. They share many common features and applications with some features specific to individual models. The chart below will make the differences clear. Most have the same size plate, 2.875" (7.3 cm) x 4.375" (11.1 cm), and all use the same sample blocks. The larger Models IC30, IC30XT, IC35 and IC35XT have larger plate surfaces (5" x 5", 12.7cm square) and larger blocks with more sample capacity. All the digital units have an RS232 I/O port, 30-day countdown timer with alarm and user settable Auto-Off, built-in data logger, electronic calibration, back-lit two-line alphanumeric display with 16 characters per line, and UP/DOWN arrow front panel membrane switch for complete control of all functions. Some units are fully programmable and will store 3 routines in memory, and four of the units have built-in orbital shakers for mixing while heating or chilling. They all control temperature to 1ºC from -10ºC to 100ºC (XT versions control from -20ºC to 100Cº). The analog units chill only and to 30ºC (XT version to 40º) below ambient without controls. These analog units make excellent replacements for an ice bath. All units are Peltier-based with no compressors or CFC's to worry about.

SOME APPLICATIONS

- Maintaining 14ºC for ligation reactions
- Maintaining 17ºC for storing oocytes
- Enzyme reactions and deactivations
- Storing enzymes and DNA libraries at your work station
- Incubating samples at 37ºC
- Storing samples at ice bucket temperatures without the ice
- Incubating or chilling samples in 96 and 384-well assay plates
- Hybridizations
- PCR sample prep
- Micro Incubations
- General molecular biology

The charts below and to the right show our complete range and features for each.

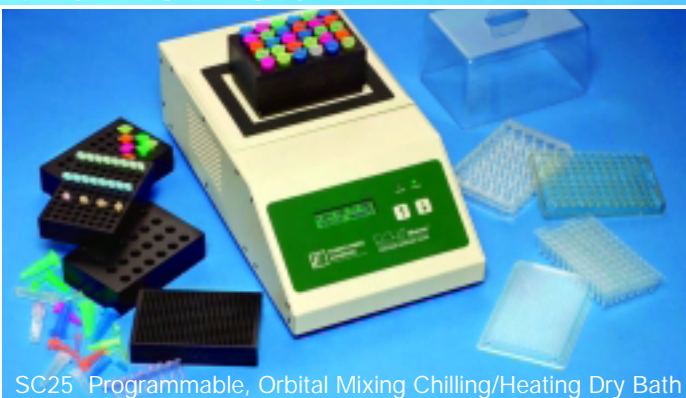| Features	Models							
	IC10	IC10XT	IC20	IC20XT	IC25	IC25XT	IC22	IC22XT
Peltier Driven	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Temperature Range Settable	30C below room temp.	40C below room temp.	-10 to 100C	-20 to 100C	-10 to 100C	-20 to 100C	-10 to 100C	-20 to 100C
Digital Controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Programmable, 5 Routines	No	No	No	No	Yes	Yes	No	No
Orbitable Mixing and Speed, RPM	No	No	No	No	No	No	No	No
Plate Size, Centimeters	7.3 x 11.1	7.3 x 11.1	7.3 x 11.1	7.3 x 11.1	7.3 x 11.1	7.3 x 11.1	7.3 x 11.1	7.3 x 11.1
Number of Plates, Blocks/Unit	1	1	1	1	1	1	2	2
Temperature Accuracy	N/A	N/A	0.5C	0.5C	0.5C	0.5C	0.5C	0.5C
Temperature Readability	N/A	N/A	1C	1C	1C	1C	1C	1C
Temperature Stability	N/A	N/A	0.5C	0.5C	0.5C	0.5C	0.5C	0.5C
Temp. Uniformity on Blocks	N/A	N/A	0.3C	0.3C	0.3C	0.3C	0.3C	0.3C
PID Temperature Control	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes
30-Day Timer w/Alarm and Auto-Off	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes
RS232 I/O Port	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes
Data-Logger Built-In	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes
Universal Power Supply, Worldwide Use	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UL, CSA and CE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample Blocks Available	21	21	21	21	21	21	21	21

IC20 Chilling/Heating Dry Baths

IC30 High Capacity Chilling/Heating Dry Bath

IC22 2-Station Chilling/Heating Dry Bath

SC25 Programmable, Orbital Mixing Chilling/Heating Dry Bath

Features

	Models							
	IC30	IC30XT	IC35	IC35XT	SC20	SC20XT	SC25	SC25XT
Peltier Driven	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Temperature Range Settable	-10 to 100C	-20 to 100C	-10 to 100C	-20 to 100C	-10 to 100C	-20 to 100C	-10 to 100C	-20 to 100C
Digital Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Programmable, 5 Routines	No	No	Yes	Yes	No	No	Yes	Yes
Orbitable Mixing and Speed, RPM	No	No	No	No	Yes, 200 to 1000	Yes 200 to 1000	Yes 200 to 1000	Yes 200 to 1000
Plate Size, Centimeters	12.7 x 12.7	12.7 x 12.7	12.7 x 12.7	12.7 x 12.7	7.3 x 11.1	7.3 x 11.1	7.3 x 11.1	7.3 x 11.1
Number of Plates, Blocks/Unit	1	1	1	1	1	1	1	1
Temperature Accuracy	0.5C	0.5C	0.5C	0.5C	0.5C	0.5C	0.5C	0.5C
Temperature Readability	1C	1C	1C	1C	1C	1C	1C	1C
Temperature Stability	0.5C	0.5C	0.5C	0.5C	0.5C	0.5C	0.5C	0.5C
Temp. Uniformity on Blocks	0.3C	0.3C	0.3C	0.3C	0.3C	0.3C	0.3C	0.3C
PID Temperature Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
30-Day Timer w/Alarm and Auto-Off	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RS232 I/O Port	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Data-Logger Built-In	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Universal Power Supply, Worldwide Use	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UL, CSA and CE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample Blocks Available	19	19	19	19	21	21	21	21

Model SC25 / SC25XT - Programmable, Orbital Mixing Chilling / Heating Dry Bath
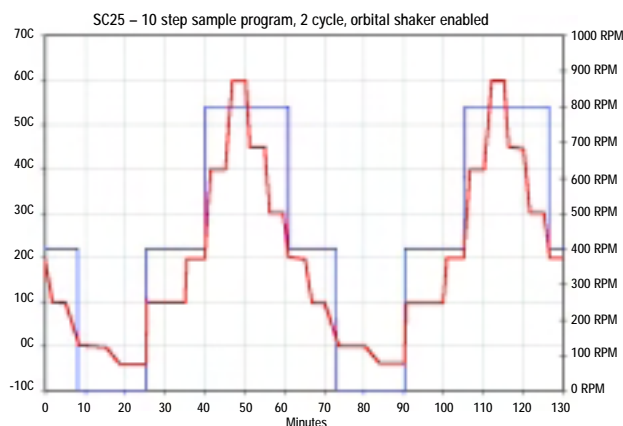

The SC25 is a fully programmable chilling/heating dry bath with built-in orbital mixer. The unit can store 5 programs in memory of as many as 10 steps per program where each step can be a temperature, time and mixing speed. Each program can be repeated from 1 to 99 times automatically.

The SC25 has speeds for mixing settable from 200 to 1000 rpm. The temperature range is -10ºC to 100ºC (XT version is -20ºC to 100ºC). The unit has an RS232 I/O port for recording data or for controlling the unit from a computer. The built-in data logger can store 7825 data points collectable in 1 second, 1 minute or 5 minute intervals. It accepts the full range of sample blocks listed on page 12 and 13 for centrifuge tubes, assay plates, vials, and test tubes. The unit is provided with a 12VDC bench top power supply that takes AC inputs from 100 to 260VAC, 50/60 Hz. It comes complete with user's manual, 3-wire AC line cord for the country of use, and full 12-month warranty. The unit measures only 14.5" (36.83 cm) deep x 7.75" (19.69 cm) wide x 4.25" (10.8 cm) tall without a sample block. It weighs about 20 pounds (9.0 kg). It is UL, CSA, and CE compliant.

The graph above shows a temperature, time and mixing speed profile that can be stored in memory in the SC25 and rerun at any time.

Model SC20 / SC20XT - Orbital Mixing Chilling / Heating Dry Bath

The Model SC 20 is a non-programmable version of the SC25. Like the SC25, the SC20 has a built-in orbital mixer with speeds settable from 200 to 1000 rpm and a temperature range from -10ºC to 100ºC (XT versions have a temperature range from -20ºC to 100ºC). It has an RS232 I/O port for recording data or for controlling the unit from a computer. The built-in data logger can store 8110 data points collectable in 1 second, 1 minute, or 5 minute intervals. It accepts the full range of sample blocks listed on pages 12 & 13 for centrifuge tubes, assay plates, vials, and test tubes. The unit is provided with a 12VDC bench top power supply that takes AC inputs from 100 to 260VAC, 50/60 Hz. It comes complete with user's manual, 3-wire AC line cord for the country of use, and a full 12-month warranty. The unit measures 14.5" (36.83 cm) deep x 7.75" (19.69 cm) wide x 4.25 (10.8 cm) tall without a sample block. It weighs about 20 pounds (9.0 kg). It is UL, CSA, and CE compliant

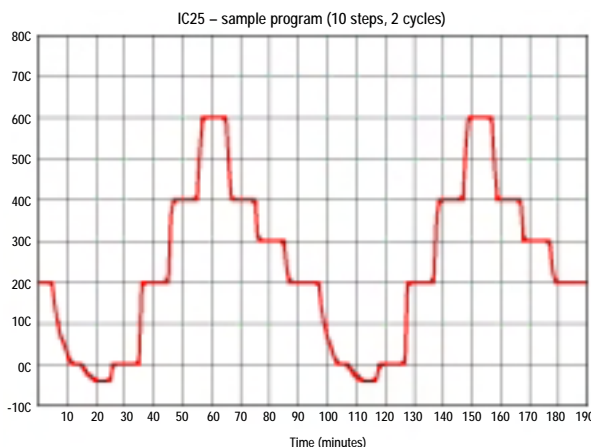## Model IC20 / IC20XT - Chilling / Heating Dry Bath
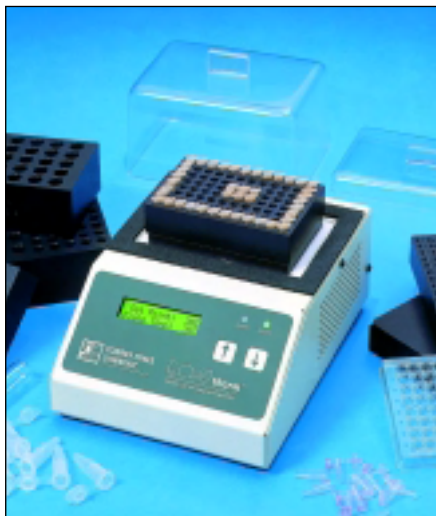
The Model IC20 is a simple set-and-forget chilling/heating dry bath. Set the temperature anywhere from -10ºC to 100ºC (-20º to 100ºC in the XT version) and the unit goes there. To change temperature, simply set in another target and the unit goes to it.

The IC20 has an RS232 I/O port for recording data or for controlling the unit from a computer. The built-in data logger can store 8110 data points collectable in 1 second, 1 minute, or 5 minute intervals. It accepts the full range of sample blocks listed on pages 12 & 13 for centrifuge tubes, assay plates, vials, and test tubes. The unit is provided with a 12VDC bench top power supply that takes AC inputs from 100 to 260VAC, 50/60 Hz. It comes complete with user's manual, 3-wire AC line cord for the country of use, and full 12-month warranty. The unit is very compact measuring 6.5" (16.5 cm) wide x 8.75" (22.23 cm) deep x 3.5" (5.6 cm) high without a sample block. It weighs about 6.5 pounds (2.9 kg). It is UL, CSA, and CE compliant.

Model IC25 / IC25XT - Fully Programmable Chilling / Heating Dry Bath
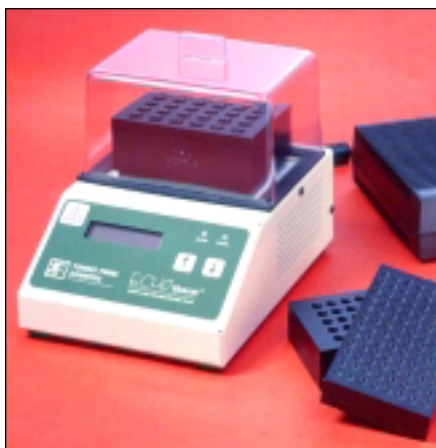
for recording data or for controlling the unit from a computer. The built-in data logger can store 7825 data points collectable in 1 second, 1 minute or 5 minute intervals. It accepts the full range of sample blocks listed on pages 12 & 13 for centrifuge tubes, assay plates, vials and test tubes. The unit is provided with a 12VDC bench top power supply that takes AC inputs from 100 to 260VAC, 50/60Hz. It comes complete with user's manual, 3-wire AC line cord for the country of use, and a full 12-month warranty. The unit is very compact measuring only 6.5" (16.5 cm) wide x 8.75" (22.23 cm) deep x 3.5" (5.6 cm) high without the sample block. It weighs 6.5 pounds (2.9 kg). It is UL, CSA, and CE compliant.

The Model IC25 is the fully programmable version of the IC20. Like the IC20 it does not shake, but it can store 5 programs in memory of as many as 10 steps per program where each program step can be a temperature and time. Each program can be repeated from 1 to 99 times automatically.

The IC25 can be set from -10ºC to 100ºC (-20º to 100ºC in the IC25XT). It has an RS232 I/O port

The graph above shows a temperature and time profile that can be stored in memory in the IC25 and rerun at any time.

Model IC22 / IC22XT - Two Position Chilling / Heating Dry Bath

The Model IC22 is a 2-position, non-programmable chilling/heating dry bath. It is like the IC20 above except that it has 2 chilling/heating positions that can be set to the same temperature or 2 different temperatures. The temperature range for both positions is -10ºC to 100ºC (-20ºC to 100ºC on IC22XT). It has an RS232 I/O port for recording data or for controlling the unit from a computer. The built-in data logger can store 8110 data points in 1 second, 1 minute or 5 minute intervals. It accepts the full range of sample blocks listed on pages 12 & 13 for centrifuge tubes, assay plates, vials and test tubes. The unit is provided with a 12VDC bench top power supply that takes inputs from 100 to 260VAC, 50/60Hz. It comes complete with user's manual, 3-wire AC line cord for the country of use, and full 12-month warranty. The unit measures 6.5" (16.5 cm) wide x 14" (35.56 cm) deep x 3.5" (8.8 cm) high without sample blocks. It weighs 9 pounds (4.1 kg). It is UL, CSA, and CE compliant.

Model IC10 / IC10XT - Electronic Ice Cube

The Model IC10, called the Electronic Ice Cube, is an uncontrolled, Peltier-driven device that chills only. It will go to 30ºC below room temperature (40ºC on the IC10XT). The unit is designed to replace an ice bucket. No more water, mess or changing ice as it melts. The unit has the same size chilling plate as all the other smaller units in this section and uses all the same sample blocks and covers. It is very small and uses virtually no bench space. It is supplied with a 12VDC bench top power supply that takes AC inputs from 100 to 260 VAC, 50/60Hz. It comes complete with cable for a car cigarette lighter for field use, user's manual, 3-wire AC line cord for the country of use, and full 12 month warranty. It measures 6.5" (16.5 cm) wide x 4.75" (12 cm) deep x 3.5" (8.9 cm) high. It weighs 6 pounds (2.7 kg). It is UL, CSA, and CE compliant.

Model IC30 / IC30XT - High Capacity Chilling / Heating Dry Bath

The Model IC30 is a heavy duty, high-capacity, set-and-forget chilling/heating dry bath. It has a larger chilling/heating surface and takes larger sample blocks that will hold more centrifuge tubes, assay plates, vials, etc. As an example, the IC20 block for 1.5ml centrifuge tubes will hold 30 of these tubes. The IC30 with its block for 1.5ml centrifuge tubes will hold 64. The temperature range is from -10ºC to 100ºC (-20ºC to 100ºC on the IC30XT). To set temperature, simply touch the UP or DOWN arrows to the value wanted and the unit will go there.

The IC30 has an RS232 I/O port for recording data or for controlling the unit from a computer. The built-in data logger can store 8110 data points collectable in 1 second, 1 minute, or 5 minute intervals. It accepts the full range of sample blocks listed on pages 13 & 14 for centrifuge tubes, assay plates, vials and test tubes. The unit is provided with a 12VDC bench top power supply that takes AC inputs from 100 to 260VAC, 50/60Hz. It comes complete with user's manual, 3-wire AC line cord for the country of use, and a full 12-month warranty. The unit is very compact. It measures 8.5" (21.6cm) wide x 10" (25.4cm) deep x 4" (10.2cm) high without a sample block. It weighs 8 pounds (3.64kg). It is UL, CSA, and CE compliant.

## Model IC35/IC35XT - High Capacity, Fully Programmable Chilling / Heating Dry Bath

The Model IC35 is the fully programmable version of the IC30. It can store 5 programs in memory of as many as 10 steps per program where each program step can be a temperature and time. Each program can be made to repeat from 1 to 99 times automatically.

The IC35 can be set from -10ºC to 100ºC (-20ºC to 100ºC for the the IC35XT). It has an RS232 I/O port for recording data or for controlling the unit from a computer. The built-in data logger can store 7825 data points collectable in 1 second, 1 minute, or 5 minute intervals. It accepts the full range of blocks listed on pages 13 & 14 for centrifuge tubes, assay plates, vials and test tubes. The unit is provided with a 12VDC bench top power supply that takes AC inputs from 100 to 260VAC, 50/60Hz. It comes complete with user's manual, 3-wire AC line cord for the country of use, and a full 12-month warranty. The unit is very compact measuring only 8.5" (21.6cm) wide x 10" (24.5cm) deep x 4" (10.2cm) high without a sample block. It weighs 8 pounds (3.64kg). It is UL, CSA, and CE compliant.

IC35 – sample program (10 steps, 2 cycles)
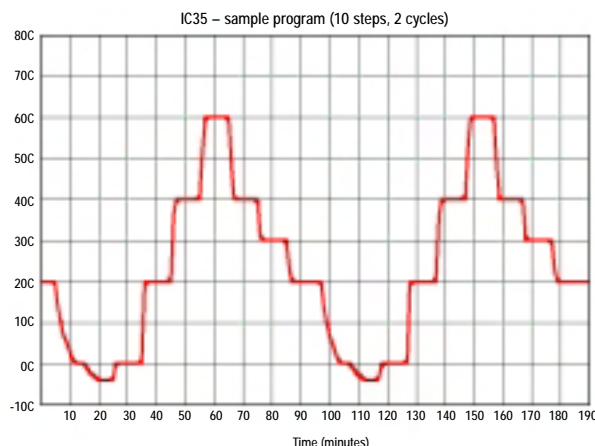
The graph above shows a temperature and time profile that can be stored in memory in the IC35 and rerun at any time.
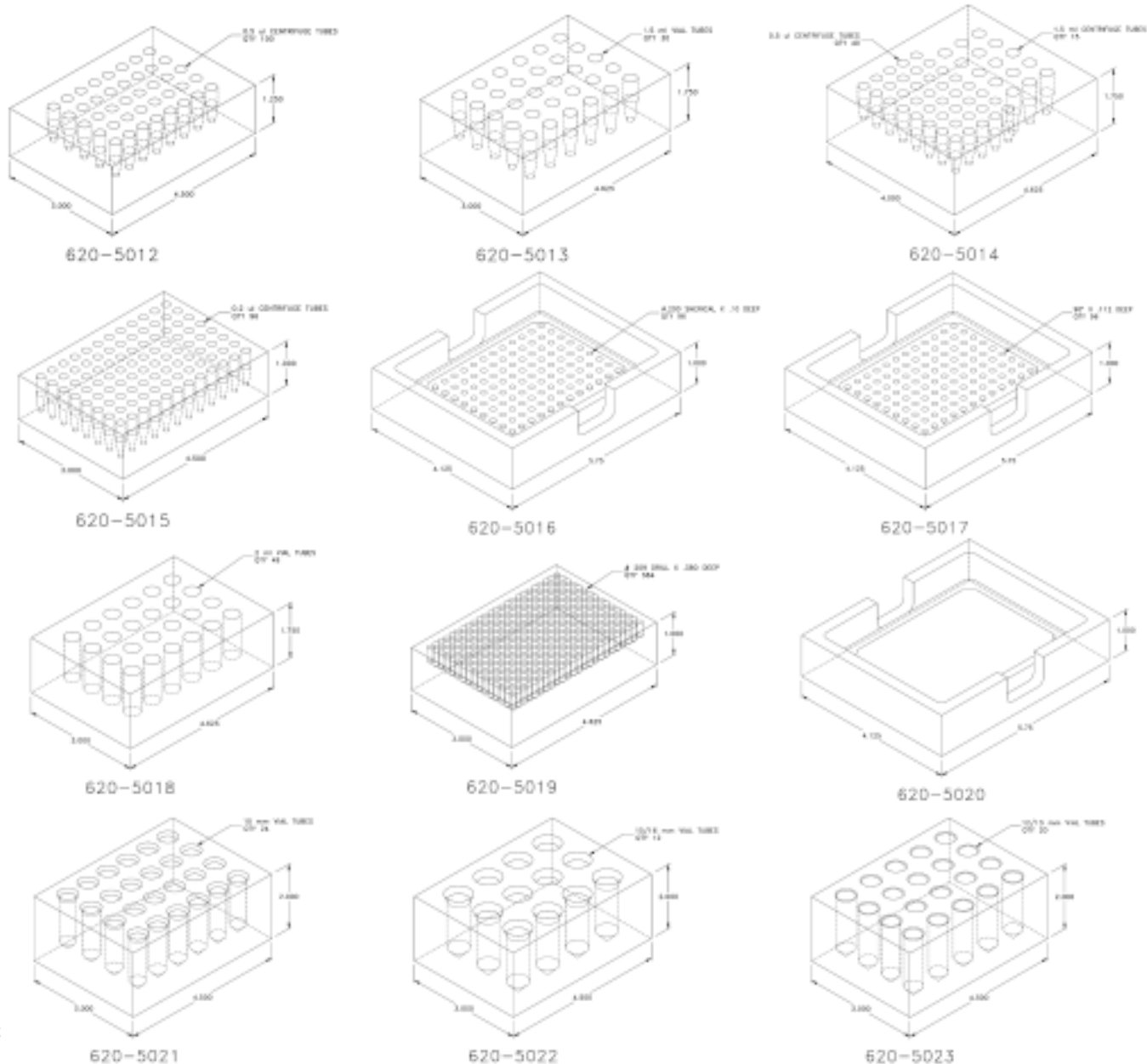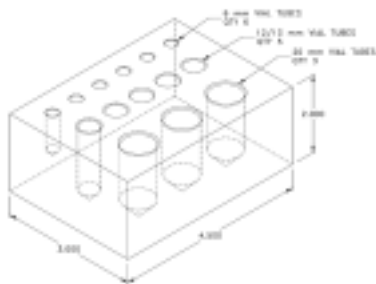
Sample Blocks and Covers

There are two families of blocks listed. One is for the IC30, IC30XT, IC35 and IC35XT. These are the larger capacity blocks with the numbers that start 620-55XX. The other family starts with the numbers 620-50XX and are for all of the other units. All blocks are precision machined from solid aluminum to exactly fit the sample container shape listed. The bottom of the blocks is machined to nest on the dry bath plates to prevent movement. The blocks for the shaking units have magnets in their base to keep them stable while shaking. **Also, custom blocks are available for any sample container on special order.**

Clear polycarbonate covers are available. The bigger covers are for the IC30, IC30XT, IC35 and IC35XT. They are part number 720-5509. The covers for the smaller blocks are number 720-0009.

Sample Blocks for - IC10, IC20, IC25, IC22, SC20 and SC25

620-5012

620-5013

620-5014

620-5015

620-5016

620-5017

620-5018

620-5019

620-5020

620-5021

620-5022

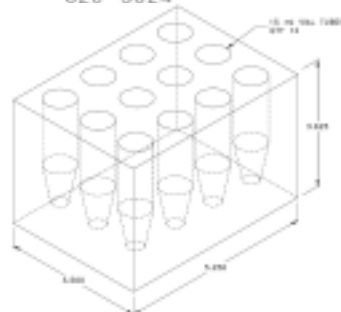620-5023

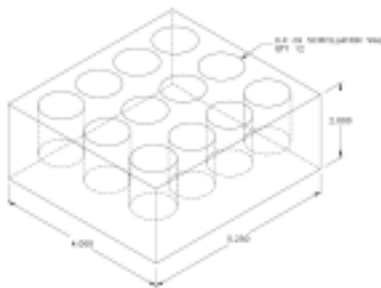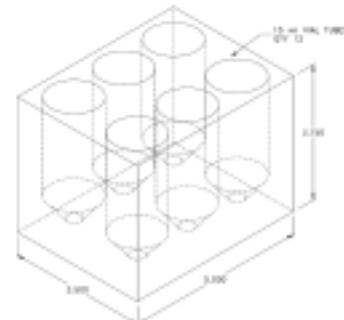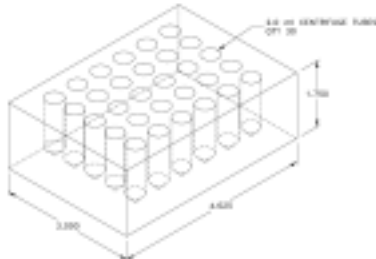# Sample Blocks for - IC10, IC20, IC25, IC22, SC20 and SC25
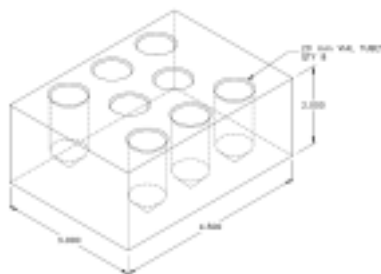
620-5024

620-5025
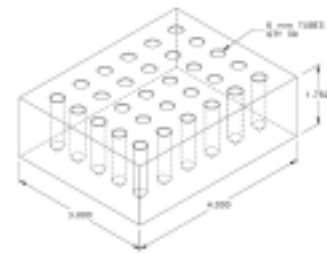
620-5026

620-5027

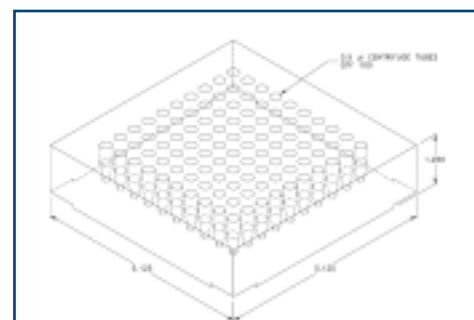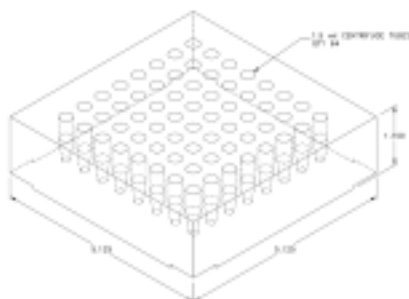
620-5028

620-5030

620-5032

Sample Blocks for - IC30 and IC35

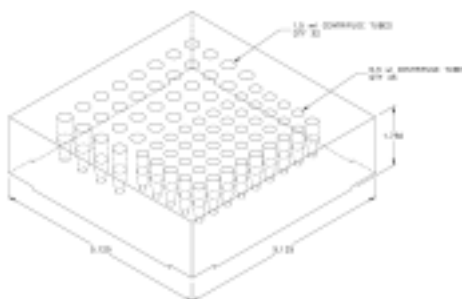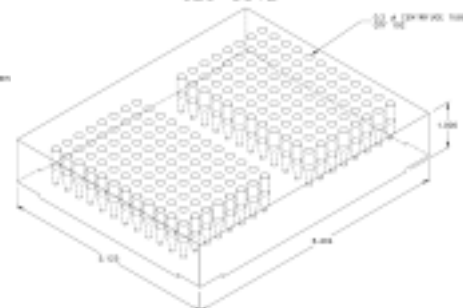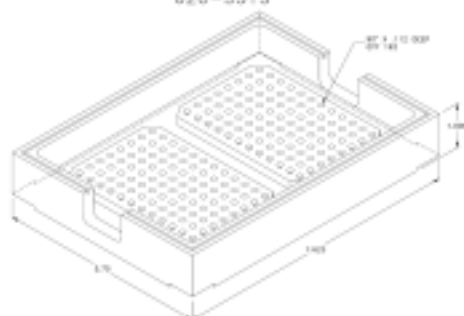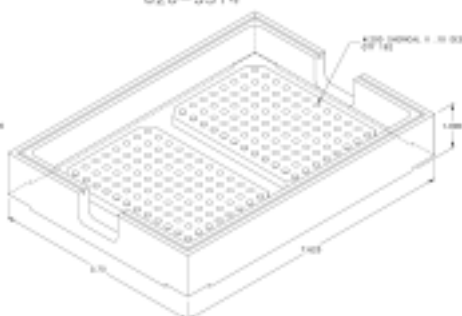
620-5512

620-5513

620-5514

620-5515

620-5516

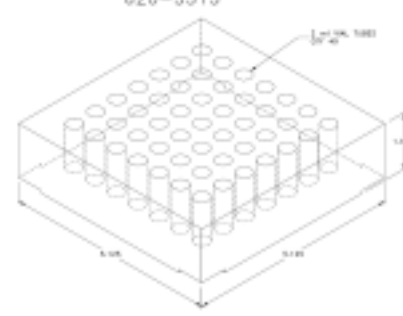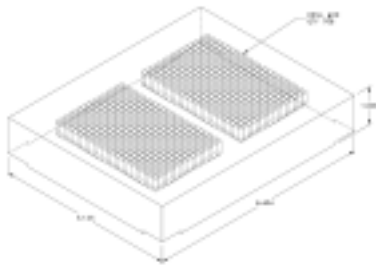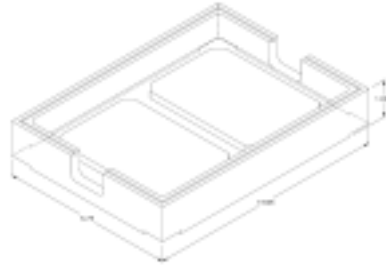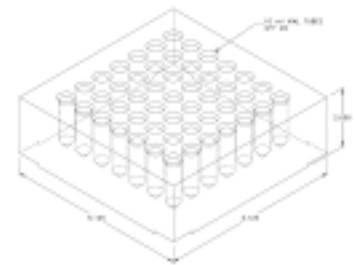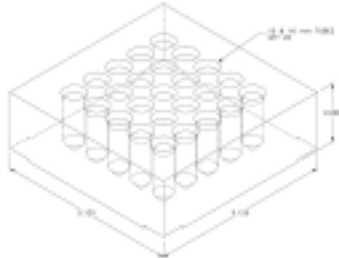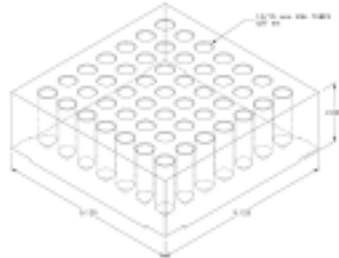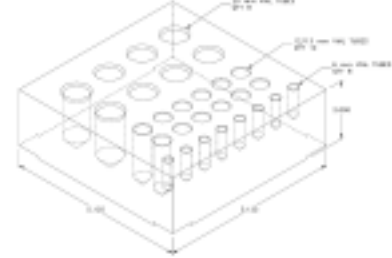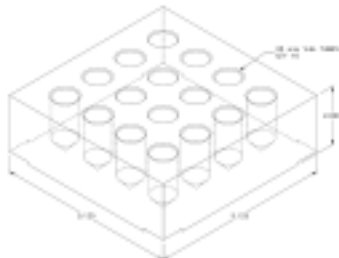620-5517

620-5518

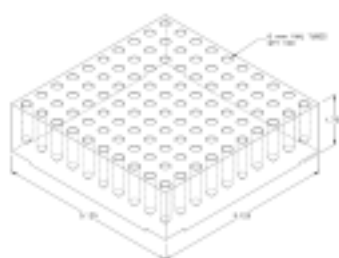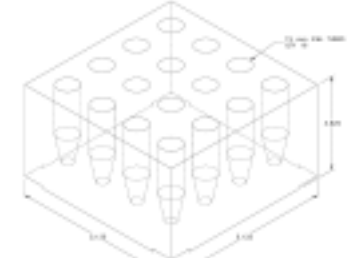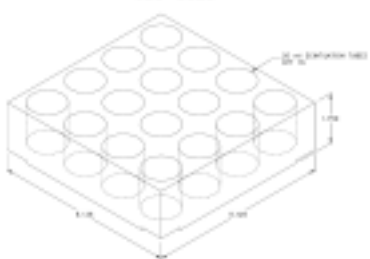## Sample Blocks for - IC30 and IC35
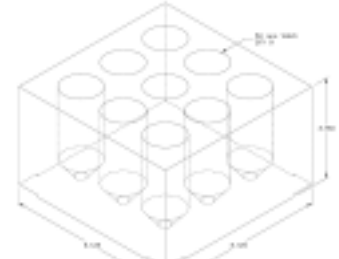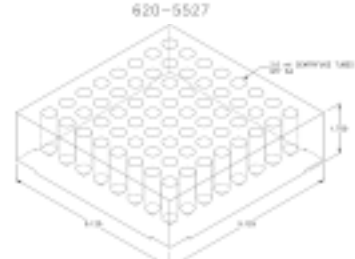

620-5519

620-5520

620-5521

620-5522

620-5523

620-5524

620-5525

620-5526

620-5527
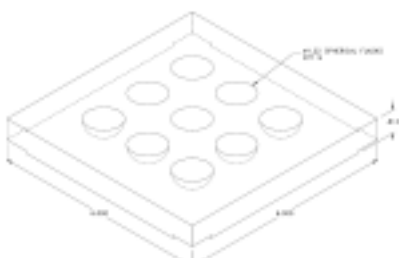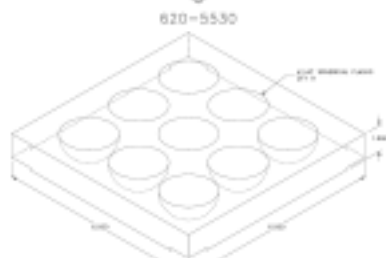
620-5528

620-5530

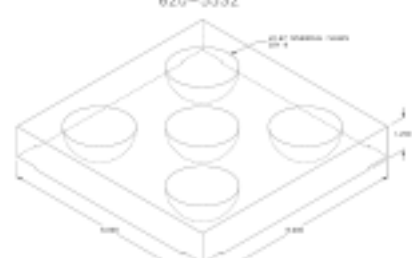620-5532
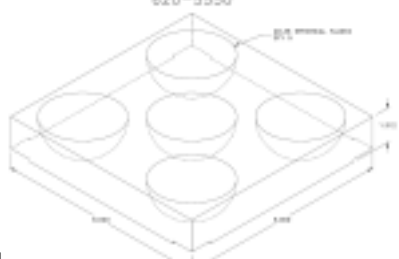
620-5550

620-5551

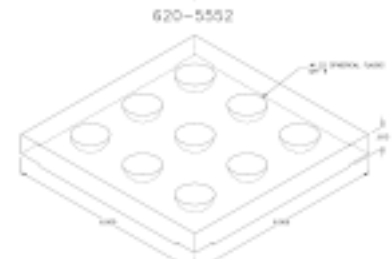620-5552

620-5553

620-5554

620-5555

The following types of hot plates and stirrers are featured in this section. For details and comparisons of individual models see the charts at the end of this section. All are ETL (UL equivalent), CSA, and CE approved.

Analog Models
• 6" (15.24cm), 8" (20.34cm), and 12" (30.48cm) heater tops
• Ceramic glass or milled-flat cast aluminum heater tops
• 1,5 or 9 stirring positions per unit
• Individual heater and stirrer controls and indicator lights
• 100, 115, 220, and 230VAC, 50 or 60Hz models

DigiLog™ Models
• 6" (15.24cm) heater tops in ceramic only
• Digital dial for heater settings in % of temperature range
• Digital keypad for settings
• 2 memory positions for saving favorite settings for instant recall
• Plate surface hot indicator

Digital Models
• 6" (15.24cm), 8" (20.34cm) and 12" (30.48cm) Heater tops
• Heater tops in ceramic glass or milled-flat cast aluminum
• Fully programmable models store 10 programs in memory
• PID closed loop control of heater plate or solution directly
• Temperature ramping on some models
• Stirrers controlled to 10rpm
• Timers with alarm and Auto-Off
• RS232 I/O port for computer control on some models

About These Products
Heater Tops
Ceramic Tops — are solid ceramic glass sheet cut to size and mounted in a cast aluminum frame. The tops are very white, very flat, and impervious to most chemical spills. They are excellent for working with solutions in a vessel. The ceramic tops will heat to 450ºC in about 2 minutes. Ceramic tops heat quickly but not as evenly as cast aluminum tops.

Milled-Flat Cast Aluminum Tops — are milled flat to 0.01" (0.254mm) corner to corner. They are excellent for working with solids directly on the heater surface. They heat more slowly than the ceramic surface, but they heat more evenly across the surface. They are less chemically resistant than ceramic and maximum temperature reached is 400ºC.

Stirrers
All stirring units are specified to stir from 100 to 1500 rpm. The stirrers are an optimum combination of motor and magnet to couple strongly with the stir bar in the solution. Stir bar selection is important. Choose a fresh stir bar of the proper size for your solution.

The analog and DigiLog units have open loop stirrer controls. Stirring speed will generally increase over time as the motor sleeve type bearings warm up, so the stirring speed should be monitored.

Digital units have ball bearing motors coupled with closed-loop control using a combination of optical disk and counter tied to a microprocessor. Speed is set digitally through the membrane keypad and constantly monitored by the microprocessor to maintain the exact stirring speed set even through sample viscosity changes.

General Construction
All units are housed in a cast aluminum chassis and painted with chemically resistant epoxy paint. They are designed to keep spills out of the case. All controls are mounted well forward from the heater tops to help prevent burns. All have fused AC inputs and six-foot long detachable line cord supplied with the plug for the country of use. All have rubber feet to prevent creeping. All are ETL (UL equivalent), CSA, and CE compliant.

EchoTherm™ Premium Digital Hot Plate & Stirring Hot Plate

Models HP30 & HP30A Digital Hot Plates

Above is the milled flat cast aluminum heater top for the HP30A. This top heats very evenly and is recommended for heating solids directly.

The Digital Hot Plates Models HP30 and HP30A are identical with the exception of the material of the heater top. The HP30 has a solid ceramic heater top and the HP30A has a milled-flat, cast aluminum heater top. The HP30 will heat to 450ºC while the HP30A will heat to 400ºC. The HP30 with ceramic top is recommended for use with aggressive chemicals and high temperatures. The HP30A is recommended for use with any solids placed directly on the heater top. The HP30A's aluminum top heats slower than the ceramic top, but it also heats much more evenly across the surface. It is milled flat corner to corner to better than 0.01" (0.254 mm).

Both units are accurate to 1% over their entire range and will hold a set temperature to 1ºC. The ceramic top will heat to 450ºC in about 2 minutes while the aluminum top will heat to 400ºC in about 10 minutes. Both use 600 watts of heater power. They both have platinum RTD sensors under the plate surface for sensing the plate temperature that is tied together with a PID control loop specific for the heater top being used. Both have a probe jack on the rear of the unit for an accessory probe that is used to sense solution temperatures. They both have a specific PID control loop for controlling solutions in a vessel.

The custom LCD on both displays the plate and probe target and actual temperatures, temperature ramp, and count down timer with alarm and user settable Auto-Off. They feature electronic calibration that is set at the factory and traceable to NIST. Calibration easily can be reset by the user in the field to local standards if wanted or needed. An RS232 I/O port is provided for collecting data or for controlling the units from a computer.

The HP30 and HP30A are available in 100 and 115VAC, 50/60 Hz, 8 amp, and 230VAC, 50/60 Hz, 4 amp models. They come complete with 6-foot 3-wire grounded AC line cord for the country of use, user's manual and full 12 month warranty. They measure 15.75" (40.01 cm) deep by 9.125" (23.18 cm) wide by 4.75" (12.07 cm) high. They weigh 12 pounds (5.4 kg). They are UL, CSA, and CE compliant.

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EchoTherm™ Premium Programmable and Digital
Hot Plate and Stirring Hot Plate

Model HS30 - Digital Stirring Hot Plates

The Model HS30 is the easiest to use, fully featured digital stirring hot plate ever made.

It has a solid ceramic heater top framed in cast aluminum that is very white, very flat, and very resistant to chemical spills. The unit will heat and control temperature to 1ºC from ambient to 450ºC, and is accurate to 1% of the setting throughout the entire range. It will heat the plate surface to 450ºC in about 2 minutes using only 600 watts of power in the heater. The unit has a platinum RTD temperature sensor in the heater top and a PID heater top control loop designed specifically for setting and controlling the heater plate directly. There is a jack on the rear of the unit for an accessory platinum RTD probe for sensing solution temperatures directly that is tied together with a separate PID control loop designed specifically for controlling solutions.

The custom LCD displays both the plate and probe target and actual temperatures, stirring speed, count down timer in hours, minutes and seconds to 99 hours with user settable Auto-Off that will set all functions to zero at the end of a count down timed event, and temperature ramping used to increase or decrease temperature at a given rate. Ramp rates can be set from 1ºC to 450ºC per hour.

The HS30 will stir from 100 to 1500 rpm while controlling the setting to ±10 rpm. The stirrer motor speed is optically sensed and then controlled by the microprocessor in the unit

Right is a close-up of the membrane switch and display. To set a solution temperature, press the solution icon and then the UP arrow until the desired temperature is displayed. The instrument does the rest. Plate temperature, temperature ramping, stirring speed, and timer are just as simple to set.

Stainless steel probes are fine for most applications. For aggressive solutions Teflon is recommended as long as solution temperatures are below 250ºC. For higher temperatures with aggressive solutions use the borosilicate glass probe.

regardless of changes in sample viscosity. The unit features electronic calibration that is set at the factory and traceable to NIST and easily reset by the user to local standards if wanted or needed. An RS232 I/O port for controlling the unit or for collecting data is provided.

The HS30 is available in 100, 115VAC, 50/60Hz, 8 amp, or 230VAC, 50/60Hz, 4 amp models. It comes complete with six-foot, 3-wire grounded AC line cord for the country of use, user's manual and full 12 month warranty. It measures 15.75" (40.01 cm) deep by 9.125" (23.18 cm) wide by 4.75" (12.07 cm) high and weighs 12 pounds (5.4 kg). It is UL, CSA, and CE compliant.

Digital Hot Plate & Stirring Hot Plate
Accessories

HS30-600 – Probe, immersion, 6" stainless steel, platinum RTD, 3' lead

HS30-601 – Probe, immersion, 10" stainless steel, platinum RTD, 3' lead

HS30-602 – Probe, immersion, 6" Teflon, platinum RTD, 3' lead

HS30-603 – Probe, immersion, 6" glass, platinum RTD, 3' lead

HS30-700 – Temperature probe calibration kit

Model HS40 - Fully Programmable Digital Stirring Hot Plate

The Model HS40 is fully programmable through the membrane keypad. It can store 10 programs in memory of as many as 10 steps each where a step is a temperature, temperature ramp rate (if wanted), stirring speed and time. Each program can be instructed to repeat from 1 to 98 times. Setting 99 times will repeat the program infinitely. All programs are stored in CMOS. There are no batteries to replace. The HS40 can be used in the programmable and the non-programmable modes.

The HS40 has a fully featured LCD that displays all parameters all the time. It has a solid ceramic heater top framed in cast aluminum that is very white, very flat, and very chemically resistant. The HS40 will heat and control temperature to 1ºC from ambient to 450ºC, and is accurate to 1% of the setting. It will heat the plate surface to 450ºC in about 2 minutes. It can be set to ramp temperatures up or down from 1ºC to 450ºC per hour. It has a platinum RTD temperature sensor in the heater top and a PID heater control loop designed specifically for setting and controlling the heater top directly. There is a jack on the rear of the unit for an accessory platinum RTD probe for sensing solution temperatures directly. It is tied together with a separate PID control loop designed specifically for controlling solutions in a vessel.

The custom LCD displays both plate and probe target and actual temperatures, stirring speed, count down timer in hours, minutes and seconds to 99 hours with user settable Auto-Off, temperature ramping, and program steps if in the programming mode. The HS40 will stir from 100 to 1500 rpm while controlling to ±10 rpm. The stirrer speed is optically sensed and controlled by the microprocessor regardless of changes in sample viscosity. The unit features electronic calibration that is set at the factory and traceable to NIST and easily reset by the user to local standards if wanted or needed. An RS232 I/O port

for controlling the unit or for collecting data is provided. The HS40 is available in 100 and 115VAC, 50/60Hz, 8 amp, or 230VAC, 50/60Hz, 4 amp models. It comes complete with 6-foot 3-wire grounded line cord for the country of use, user's manual and full 12 month warranty. It measures 15.75"(40.01 cm) deep by 9.125" (23.18 cm) wide by 4.75" (12.07cm) high. It weighs 12 pounds (5.4kg). It is UL, CSA, and CE compliant.
See probes and accessories above.
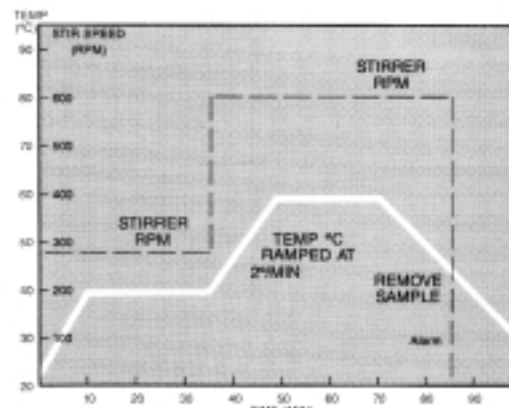
The chart shows a program that can be stored in memory and run at any time. The program can be set to repeat itself from 1 to 98 times, or infinitely.

16

The EchoTherm Digital units have fewer features than the EchoTherm Premium line on the prior pages. Yet these units have more features than most any other digital hot plate or stirring hot plate available anywhere. They have control of solution or plate surface to 1ºC, stirring speed controllable to 10rpm, timer from 99 hours readable to 1 second with user settable Auto Off, and two separate memory position settings for storing your two favorite combinations of temperature and stirrer speed with easy one-touch recall.

These units come with solid ceramic or milled-flat cast aluminum heater tops in either 6" (15.24cm) x 6" (15.24cm) size or 12" (30.48cm) x 12" (30.48cm) size.

Model HS50/HS51 - Digital Stirring Hot Plates

The Models HS50 and HS51 are simple to use digital stirring hot plates with 6" (15.24cm) x 6" (15.24cm) heating surface on the HS50 and 12" (30.48cm) x 12" (30.48cm) on the HS51. They come with ceramic or milled-flat cast aluminum top. They can heat to 450ºC with the ceramic top in less than 5 minutes, and to 400ºC with the cast aluminum top in less than 10 minutes. They can be set to read in degrees C or degrees F. The HS50 can stir an aqueous solution of 2 liters, and can support weights in excess of 20 pounds (9.0kg). The HS51 can stir an aqueous solution of 5 liters or more, and can support weights in excess of 40 pounds (18.0kg). The stirring speed is settable from 100 to 1500 rpm and controllable to 10 rpm even through sample temperature and viscosity changes. The stirrer motor has ball bearings for long life and smooth operation at lower speeds.

The temperature sensing system is platinum RTD for 1% accuracy over the entire operating range. They can control a setting of a degree or so above room temperature. They control all settings to 1ºC using a PID control loop for either plate surface using the sensor built into the heater plate or a solution using the probe provided with the unit. Heater power is an efficient 400 watts for the 6" x 6" units and 1400 watts for the 12" x 12" ceramic topped unit and 1200 watts for the 12" x 12" aluminum topped unit.

The custom LCD shows either Plate or Solution temperature and toggles between the Target and Actual readings. It will display temperature in degrees C or F. The stirrer speed is displayed from 100 to 1500 rpm and is readable to 10 rpm. The timer can be set to 99 hours maximum and will display that to one second.

The units are intuitive and extremely easy to use. To set a temperature simply touch the HEATER key and use the arrows to select the target temperature, and press ENTER. The units will go to that temperature. All other settings are just as simple. In addition, two of your favorite settings for temperature and stirrer speed can be set in memory for instant recall and use.

The HS50 and HS51 are available in 100, 115, and 230 VAC 50/60Hz.

They come complete with six-foot, 3-wire grounded line cord for the country of use, steel immersion probe, user's manual and a 12 month warranty. The HS50 measures 10" (25.4cm) deep x 7" (17.78cm) wide x 4.5" (11.43cm) tall. It weighs 7 pounds (3.15kg). The HS51 measures 17" (43.18cm) deep x 12.5" (31.75cm) wide x 4.5" (11.43cm) high and weighs 18 pounds (8.15kg). They are ETL, CSA, and CE approved.

Model HP50/HP51 - Digital Hot Plate

The Models HP50 and HP51 are digital hot plates only with 6" (15.24cm) x 6" (15.24cm) heater top for the HP50 and 12" (30.48cm) x 12" (30.48cm) heater top on the HP51. They have the same simple to use controls of the HS50 and HS51 but without the stirrer. They can heat to 450ºC with the solid ceramic heater top in less than 5 minutes, or it can heat to 400ºC with the milled-flat cast aluminum top in under 10 minutes. They can be set to read in degrees C or degrees F.

The temperature sensing system is platinum RTD for 1% accuracy throughout the operating range. They can control a setting to a degree or so above room temperature while controlling all settings to 1ºC or F using a PID control loop for either plate surface using the sensor built into the heater plate or a solution using the probe provided with the unit. Heater power is an efficient 400 watts on all 6" x 6" units and 1400 watts on 12" x 12" ceramic topped units and 1200 watts on all 12" x 12" aluminum topped units.

The custom LCD shows either plate or solution temperature and toggles between the Target and Actual readings. It will display temperature in degrees C or F. The timer can be set to 99 hours maximum and will display to one second.

The HP50 and HP51 are intuitive and extremely easy to use. To set a temperature simply touch the HEATER key and use the arrows to select the target temperature, and press ENTER. The unit will go to that temperature. All other settings are just as simple. In addition, two of your favorite settings of temperature can be stored in memory for instant recall and use.

The HP50 and HP51 are available in 100, 115, and, 230VAC, 50/60Hz. They come complete with six-foot, 3-wire grounded line cord for the country of use, stainless steel immersion probe, user's manual and a 12 month warranty. The HP50 measures 10" (25.4cm) deep x 7" (17.78cm) wide x 4.5" (11.43cm) tall. It weighs 5 pounds (2.3kg). The HP51 measures 17" (43.18cm) deep x 12.5" (31.75cm) wide x 4.5" (11.43cm) high. Weight is 16 pounds (7.3kg). They are ETL, CSA, and CE approved.

17

Analog Single Position Stirring Hot Plates

HS1

HS10

HS11

Analog Stirring Hot Plates

There are 3 models of single position stirring hot plates. They are available with a choice of solid ceramic or milled-flat heater tops in three different heater top sizes, 6" (15.24cm), 8" (20.32cm) and 12" (30.48cm). All are made with cast aluminum chassis painted with chemically resistant epoxy paint. They are designed to keep spills out of the case, and they have all controls mounted well forward of the heater top for safety. All heater and stirrer controls are solid state with indicator lamp that illuminates when the control is on.

All stirrers are capable of stirring aqueous solutions from 100 to 1500 rpm. The controls have an OFF position fully counter-clockwise that is continuous over 270 degrees of rotation from minimum to maximum. The magnets are a circular disc with twenty pounds of pull on the 6" and 8" models and 30 pounds of pull on the 12" models. The 6" and 8" models can stir up to 2 liters, while the 12" models can stir 5 liters.

The heater controls have OFF, LO, and HIGH positions for quick setting and a smooth infinite control of about 270 degrees between LO and HIGH. The heaters will regulate to about ± 2.5ºC of the set temperature once it stabilizes.

HS1   6" stirring hot plate
HS10   8" stirring hot plate
HS12   12" stirring hot plate

These units are available in models for 100VAC, 50 Hz, 115VAC, 60 Hz, 220VAC, 60Hz, and 230VAC, 50Hz. All are fused for safety, and all are ETL, CSA and CE approved. They come complete with grounded 3-wire detachable AC line cord for the county of use, user's manual, and a full 12-month warranty.

The 6" models are 10" (25.4cm) deep x 7" (17.78cm) wide x 4.5" (11.43cm) high. The 8" models are 13" (33cm) deep x 9" (22.9cm) wide x 3.5" (8.9cm) high. The 12" models are 17" (43.8cm) deep x 12.5" (31.75cm) wide x 4.5" (11.43cm) high.

Analog Hot Plates

There are 3 sizes of analog hot plate. They are available with solid ceramic or milled-flat cast aluminum tops in 3 different sizes, 6", 8" and 12". They look identical to the units shown above but with one less knob. They use the same chassis as the units mentioned above, and have the same heater specifications as the stirring hot plates above. They feature the same heater control and indicator lamps, and they operate the same.

HP1   6" hot plate
HP10   8" hot plate
HP11   12" hot plate

They are available in 100VAC, 50Hz, 115VAC, 60Hz, and 230VAC, 50Hz. The chassis sizes are the same. They are all ETL, CSA and CE approved. All come complete with detachable 3-wire grounded line cord for the country of use, user's manual and a full 12-month warranty.

Single Position Analog Stirrers

There are 3 sizes of single position analog stirrer. They are available with solid ceramic or aluminum sheet metal tops in 3 sizes, 6", 8", and 12". They look almost identical to the units shown above. They use the same chassis as the stirring hot plates mentioned above, and have the same stirrer specifications as the stirring hot plates mentioned above. They feature the same stirrer control and indicator lamps, and they operate the same.

ST1   6" stirrer
ST10   8" stirrer
ST11   12" stirrer

They are available in 100VAC, 50HZ, 115VAC, 60Hz, 220VAC, 60Hz, and 230VAC, 50Hz models. The chassis sizes are the same as the stirring hot plates mentioned above. They are all ETL, CSA and CE approved. All come with a detachable 3-wire grounded line cord for the country of use, users manual and a full 12-month warranty.

Multi-Position Analog Stirrers and Stirring Hot Plates

There are 4 multi-position stirring units available. There are a 5-position stirrer, 9-position stirrer, 5-position stirring hot plate and 9-position stirring hot plate. All have 12" (30.48cm) x 12" (30.48cm) solid ceramic tops. All are made with cast aluminum chassis painted with chemically resistant epoxy paint. They are designed to keep spills out of the case, and they have all controls mounted well forward of the heater top for safety. All heater and stirrer controls are solid state with indicator lamps that illuminate when the controls are on.

All stirring units have individual controls for each stirring position making it possible to stir different samples at different speeds if needed.

All stirrers are capable of stirring aqueous solutions from 100 to 1500 rpm. The stirrer controls have an OFF position fully counter-clock-wise that is continuous over 270 degrees of rotation from minimum to maximum. The magnets are circular disc with twenty pounds of pull strength. The 5-position stirring units can stir 5-1 liter vessels. The 9-position stirring units can stir 9-800ml vessels.

The heater control has an OFF, LO and HIGH position for quick setting and a smooth infinite control of about 270 degrees between LO and HIGH. The heaters will regulate the set temperature to about ±2.5ºC of the set point once it stabilizes. The heater plate is all one temperature.

ST15   5-positon stirrer
ST19   9-positon stirrer
HS15   5-position stirring hot plate
HS19   9-positon stirring hot plate

The units are 17" (43.8cm) deep x 12.5" (31.75cm) wide x 4.5" (11.43cm) high. They are available in models for 100VAC, 50Hz, 115VAC, 60Hz, 220VAC, 60Hz, and 230VAC, 50Hz. All are fused for safety, and all are ETL, CSA, and CE approved. They come complete with grounded 3-wire detachable AC line cord for the country of use, user's manual, and a full 12-month warranty.

For detailed specifications see the charts on pages 20 and 21

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The Digilog series are hybrids of analog and digital units combining features of both to make reliable, easy to use units that are priced like simple analog units. Here are some features:

Digital Features

- 3- digit display of heater power as a percent of total range for easy resetting. No need to mark the heater knob or front panel.
- Membrane keyboard setting of all parameters. Easy scroll up or down settings. No mechanical controls at all!
- Two memory keys for saving your 2 favorite combinations of temperature and stirring speed for one button instant recall.
- "Plate Hot" red LED illuminates when plate temperature goes above 50ºC and stays lit when the plate is hot even after the unit is turned off.
- Main power ON/OFF button on the front panel for easy, safe access. Prior settings are retained when the unit is turned off and the unit will return to those settings automatically when turned on again.
- Indicator lights and ON/OFF buttons for heater and stirrer power. Turn either off with a single button. Turn on again and the prior settings remain.
- Heater power regulated even through changes in line voltage. Heater temperature stays much more stable than standard analog units.
- Low plate temperature settings as low as 30ºC.
- Heater drive software written to go up to setting quickly. Reduced heating times.

Analog Features

- Inexpensive price. These units cost less than most strictly analog units.
- Compact size. They are 10" (25.4cm) deep by 7" (17.78cm) wide by 4.5" (11.43cm) high.
- Ruggedness. Will support over 30 pounds (13.5kg).
- Simple to use. Scroll up and scroll down settings.
- Simple to service if needed. Service by anyone. No special training required.
- Fused AC input line.

Three models of DigiLog units are available: a hot plate Model HP20, a stirrer Model ST20 and a stirring hot plate Model HS20. All use the same compact, rugged cast aluminum chassis that is designed to keep spills out of the case.

The stirrer features a circular disk magnet capable of lifting 20 pounds (9kg) coupled to a strong stirrer motor, making these units capable of stirring 2 liters of aqueous solution. The stirrer range is from 100 to 1500 rpm.

The heating units, Models HS20 and HP20, will heat to 450ºC in less than 5 minutes using just 400 watts of heating power. The heater is set using a digital display and UP/DOWN arrows to set the heater power in percentage of full power in 1% increments. The lowest setting is below 30ºC on a setting of 1%. The 50% setting is roughly one half of 450ºC or about 250ºC. This type of control and indicator are a digital dial and not designed to give an exact temperature setting, just an easily repeated setting. Once the temperature reaches its set point, it will hold that temperature within ±2.0ºC.

There are two MEM (memory) keys on each unit, MEM1 and MEM2. Two frequently used heating/stirring combinations may be saved in memory. Simply set the stirrer and heater to those settings and then push and hold the MEM1 or MEM2 key depressed until the beep sounds. Those settings are saved to memory. The next time that sample is run, just place it on the unit and touch the memory key. The previously set heat and stir values will be run automatically.

ST20: available in 100VAC, 50HZ, 0.5 amp; 115VAC, 60HZ; 220VAC, 60 Hz; and 230VAC, 50 Hz. HP20: available in 100VAC, 50Hz; 115VAC, 60Hz; and 230VAC, 50Hz. HS20: available in 100VAC, 50Hz; 115VAC, 60Hz; 220VAC, 60Hz; and 230VAC, 50Hz. All models are 10" (25.4cm) deep by 7" (17.78cm) wide by 4.5" (11.43cm) high. All come complete with 3-wire AC line cord for the country of use, user's manual, and full 12-month warranty. All are ETL, CSA and CE compliant.

The charts below and to the right show our complete range and features for each.

Features	HS1	HS1A	HP1	HP1A	ST1	HS10	HS10A	HP10	HP10A	ST10	HS11
Top Size, Centimeters	15.2 x 15.2	15.2 x 15.2	15.2 x 15.2	15.2 x 15.2	15.2 x 15.2	20.3 x 20.3	20.3 x 20.3	20.3 x 20.3	20.3 x 20.3	20.3 x 20.3	30.5 x 30.5
Aluminum or Ceramic Top	Ceramic	Aluminum	Ceramic	Aluminum	Aluminum	Ceramic	Aluminum	Ceramic	Aluminum	Ceramic	Ceramic
Control Interface	Analog	Analog	Analog	Analog	Analog	Analog	Analog	Analog	Analog	Analog	Analog
Heat/Stir, Heat or Stir	H/S	H/S	H	H	S	H/S	H/S	H	H	S	H/S
Temperature Range, Celsius	100-450	50-400	100-450	50-400	N/A	100-450	70-400	100-450	70-400	N/A	100-450
Stirrer RPM	100-1500	100-1500	N/A	N/A	100-1500	100-1500	100-1500	N/A	N/A	100-1500	100-1500
Plate Hot Indicator	No	No	No	No	N/A	No	No	No	No	N/A	No
Settings Stored in Memory	No	No	No	No	No	No	No	No	No	No	No
Steps per Program Stored in Memory	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Programs Stored in Memory	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PID Temperature Control, Plate and Solution	No	No	No	No	No	No	No	No	No	No	No
Temperature Controlled To, Degrees Celsius	5	5	5	5	N/A	5	5	5	5	N/A	5
Timer w/Alarm and Auto Off	No	No	No	No	No	No	No	No	No	No	No
RS232 I/O Port	No	No	No	No	No	No	No	No	No	No	No
Stirring Capacity in Liters H2O	2	2	N/A	N/A	2	2	2	N/A	N/A	2	5
Temperature Ramping	No	No	No	No	No	No	No	No	No	No	No
Display All Parameters Digitally	No	No	No	No	No	No	No	No	No	No	No
UL, CSA and CE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Features — Models

Features	HS11A	HP11	HP11A	HS15	HS19	ST11	ST11A	ST15	ST19	HS20	HP20	ST20	HS30	HS30A	HP30
Top Size, Centimeters	30.5 x 30.5	30.5 x 30.5	30.5 x 30.5	30.5 x 30.5	30.5 x 30.5	30.5 x 30.5	30.5 x 30.5	30.5 x 30.5	30.5 x 30.5	15.2 x 15.2	15.2 x 15.2	15.2 x 15.2	20.3 x 20.3	20.3 x 20.3	20.3 x 20.3
Aluminum or Ceramic Top	Aluminum	Ceramic	Aluminum	Ceramic	Ceramic	Ceramic	Aluminum	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Aluminum	Ceramic
Control Interface	Analog	Analog	Analog	Analog	Analog	Analog	Analog	Analog	Analog	DigiLog	DigiLog	DigiLog	Digital	Digital	Digital
Heat/Stir, Heat or Stir	H/S	H	H	H/S	H/S	S	S	S	S	H/S	H	S	H/S	H/S	H
Temperature Range, Celsius	70-400	100-450	70-400	100-450	100-450	N/A	N/A	N/A	N/A	30-450	30-450	N/A	25-450	25-400	25-450
Stirrer RPM	100-1500	N/A	N/A	100-1500	100-1500	100-1500	100-1500	100-1500	100-1500	100-1500	N/A	100-1500	100-1500	100-1500	N/A
Plate Hot Indicator	No	No	No	Yes	Yes	N/A	N/A	N/A	N/A	Yes	Yes	N/A	Yes	Yes	Yes
Settings Stored in Memory	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	No	No	No
Steps per Program Stored in Memory	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Programs Stored in Memory	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PID Temperature Control, Plate and Solution	No	No	No	No	No	No	No	N/A	N/A	No	No	No	Yes	Yes	Yes
Temperature Controlled To, Degrees Centigrade	5	5	5	5	5	N/A	N/A	N/A	N/A	2	2	N/A	1	1	1
Timer w/Alarm and Auto Off	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
RS232 I/O Port	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Stirring Capacity in Liters H2O	5	N/A	N/A	5 x 1	9 x 800 ml	5	5	5 x 1	9 x 800 ml	2	N/A	2	2	2	N/A
Temperature Ramping	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Display All Parameters Digitally	No	No	No	No	No	No	No	No	No	Heater Only	Heater Only	No	Yes	Yes	Yes
UL, CSA and CE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Features — Models

Features	HP30A	HS40	HS40A	HS50	HS50A	HP50	HP50A	HS51	HS51A	HP51	HP51A
Top Size, Centimeters	20.3 x 20.3	20.3 x 20.3	20.3 x 20.3	15.2 x 15.2	15.2 x 15.2	15.2 x 15.2	15.2 x 15.2	30.5 x 30.5	30.5 x 30.5	30.5 x 30.5	30.5 x 30.5
Aluminum or Ceramic Top	Aluminum	Ceramic	Aluminum	Ceramic	Aluminum	Ceramic	Aluminum	Ceramic	Aluminum	Ceramic	Aluminum
Control Interface	Digital	Programmable	Programmable	Digital	Digital	Digital	Digital	Digital	Digital	Digital	Digital
Heat/Stir, Heat or Stir	H	H/S	H/S	H/S	H/S	H	H	H/S	H/S	H	H
Temperature Range, Celsius	25-400	25-450	25-400	25-450	25-400	25-450	25-400	25-450	25-400	25-450	25-400
Stirrer RPM	N/A	100-1500	100-1500	100-1500	100-1500	N/A	N/A	100-1500	100-1500	N/A	N/A
Plate Hot Indicator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Settings Stored in Memory	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Steps per Program Stored in Memory	N/A	10	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Programs Stored in Memory	N/A	10	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PID Temperature Control, Plate and Solution	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Temperature Controlled To, Degrees Centigrade	1	1	1	1	1	1	1	1	1	1	1
Timer w/Alarm and Auto Off	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RS232 I/O Port	Yes	Yes	Yes	No	No	No	No	No	No	No	No
Stirring Capacity in Liters H2O	N/A	2	2	2	2	N/A	N/A	10	10	N/A	N/A
Temperature Ramping	Yes	Yes	Yes	No	No	No	No	No	No	No	No
Display All Parameters Digitally	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UL, CSA and CE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Model RT10 - Variable Speed Rotating Mixer
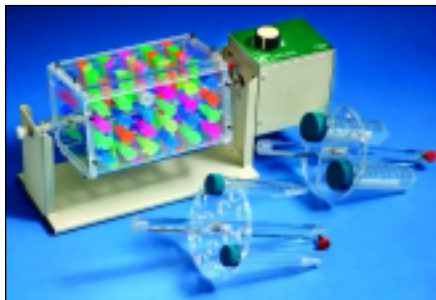
The Model RT10 variable speed rotating mixer is designed to mix 0.5 and 1.5ml centrifuge tubes in an end over end motion and 15ml and 50ml tubes in a horizontal rolling motion at speeds varying from 4 to 40 rpm using a simple knob control. The unit is provided with a mounting rack that holds 50-0.5 ml centrifuge tubes and 48-1.5ml centrifuge tubes. Accessory racks can be ordered that hold 16-15ml tubes or 6-50ml tubes. Changing from the provided rack to accessory racks can be done in just minutes. The rod holding the racks is easily removed for changing from one rack to another.

The unit is compact measuring only 4.5" (11.43 cm) wide by 13.7" (34 cm) long by 6.75" (17.15 cm) high. It weighs only 5 pounds (2.25 kg). It is powered by a 12VDC power supply that operates from 100 to 260VAC, 50/60Hz inputs. It draws less than 1 amp. The unit comes complete with rotator, racks for 0.5ml and 1.5ml centrifuge tubes, 12 VDC bench top power supply that takes AC inputs from 100 to 260VAC, 50/60Hz, 3-wire AC line cord for the country of use, and user's manual. It has a full 12 month warranty. It is UL, CSA and CE compliant.

See Price list for Accessories holding 15 ml and 50 ml centrifuge tubes.

Model CO30 - HPLC Column Chiller / Heater

The Model CO30 is an HPLC column chiller/heater with a temperature range from 4.0ºC, or 12 to 16ºC below ambient maximum, to 70.0º. It is accurate to ± 0.2C, readable and settable to 0.1C, and can control temperature to 0.1ºC with its PID control loop software. It is Peltier-driven for both heating and cooling making it CFC free. It has only 2 moving parts, the fans, making it very reliable. It has a very large chamber measuring 15.5" (39.37 cm) high x 6.385" (16.28 cm) wide x 5.125" (13.02 cm) deep. The chamber will easily hold 4-30 cm x 1" columns and a Rheodyne valve. Chamber temperature uniformity is ± 0.5ºC.

The door design is unique in that it opens out and down from the top. All columns, valves and fittings are mounted on the door exposing everything to simple and easy unobstructed access. It has drains in the door for the valve and in the chamber floor for spills. The unit has a liquid crystal display used for showing the chamber temperature and the count down timer. The unit has a 99-hour count down timer with audible alarm and user settable Auto-Off that will shut off the chiller/heater after the count down period. It has an RS232 I/O port for data logging or for controlling the unit from a computer or chromatograph. The CO30 also has a power failure reset system that will reset the unit to the temperature it was running when power returns. It has electronic calibration that is easily reset to local standards if necessary.

The CO30 can be ordered in models for 100 or 115VAC, 50/60 Hz, 2 amp, or 230VAC, 50/60 Hz, 1 amp. It comes complete with user's manual, two sizes of "O" rings for mounting columns, fused and switched AC input module, 3-wire line cord for the country of use, and 12 month warranty. The unit measures 25.5" (64.77 cm) tall x 8.75" (22.23 cm) wide x 13.5" (33.66 cm) deep and weighs 25 pounds (11.26 kg). All are UL, CSA, and CE compliant.

Model CO50 - EchoTherm™ Programmable Chilling/Heating HPLC Column Oven

The Model CO50 is a fully programmable, Peltier-based, HPLC column oven with a column temperature range from 4.0ºC to 100.0ºC. The unit has no compressors or CFC's and is virtually maintenance free. The unit can store five programs in memory for instant recall and use at any time. Each program can be set to automatically repeat from 1 to 99 times. The CO50 also can be used as a simple set and forget single temperature unit without using the programming.

The CO50 has a 15" (38.1cm) long x 1.5" (3.81cm) wide x 1.5" (3.81cm) deep chamber that can take one 1/4" or 3/8" diameter by 30cm long column and set and control the temperature of that column to 0.1ºC with an accuracy of 0.2ºC. The chilling/heating chamber is milled from a single piece of aluminum that is slightly tilted to allow spills to run to the built-in 1/8" drain tube on one end for removing and collecting them.

The CO50 has a Stable Temperature indicator to advise the user that the target temperature has been reached and is controlling. In addition, it has an injection counter to keep count on the samples run through the column, a 30-day count-down timer with alarm and user settable
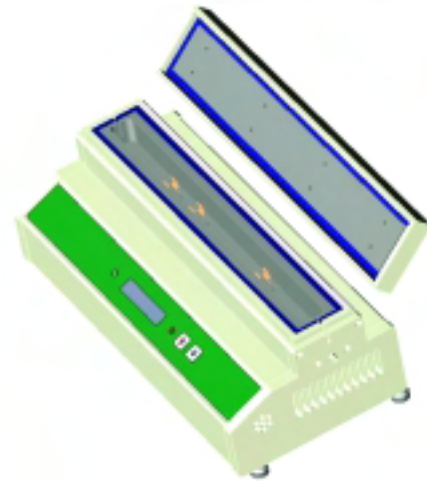
Auto-Off that turns the heater/chiller off at the end of a count-down timed event, and an RS232 I/O port for controlling the CO50 from a computer or chromatograph. Electronic temperature calibration is standard and is held in memory and is accessible by the user to reset calibration if wanted or needed.

The display is a backlit two line alphanumeric with 16 characters per line. It displays target and actual temperature and timer is used. It will display program steps if running a multi-step temperature/time program.

The unit is 16" (40.64cm) side to side x 6" (15.24cm) deep x 6" (15.24cm) high. It weighs 12 pounds (5.4kg). It is powered by a universal power supply that takes inputs from 100VAC to 260VAC, 50/60Hz and converts that to 12 volts DC for the unit. The CO50 comes complete with power supply, line cord for the country of use, counter cable, instruction manual and 12-month warranty. It is UL, CSA and CE compliant.

Being smaller than a lot of companies in the world, we at Torrey Pines Scientific, Inc. have to be better at what we do than most. To this end, we start with what we feel to be **most important: excellent products at fair prices and excellent customer service.**

Our products and prices speak for themselves, but when you call you speak to one of us, not an answering machine with voice mail. During business hours, you will always talk to a real person who cares about your needs. We are committed to it.

On top of that, we really are good at servicing our customers' needs. For instance, on the odd day that we receive a unit in for repair, it is worked on that day or the next. If needed, we will turn a repair around in a day, and we won't fleece you for the work done. **Also, we do a lot of custom work on sample blocks for our customers for use on our chilling/heating dry baths. We make the largest range of standard sample blocks, and we will make a custom block for any sample holder needed.**

Here are just a couple of quotes from some of our customers about our service:

FROM ONE OF OUR OEM CUSTOMERS:

"I trust that we are not too demanding, but you are so accommodating. I want to share part of a conversation I had this morning with one of our sales reps. A question came up about Torrey Pines and I explained that I was working with one of your people to make a sample block good for us. He also spoke about his experience with Torrey Pines in taking care of one of his customers. We expressed simultaneously how "refreshing" it was to work with you, both of us choosing the word "refreshing"."

FROM ONE OF OUR CUSTOMERS:

"Today I received a replacement for an aluminum block that I had recently purchased for use with my Electronic Ice Cube. (Originally), when I returned the warranty registration card, I filled out in the space for comments, requesting that you make a block that would fit 0.2ml thin-walled PCR strip tubes. Less than a week later, I received a telephone call from a very gracious gentleman working for your firm. He stated that you did, indeed, make such a block, and that he would be more than happy to replace the one I had with a new block.

The fact that your company listens to a customer and actually takes the time to do something about the customers' concerns is very rare today. Your personnel are to be commended. I will certainly continue to purchase lab equipment from your company. Thank you.""

And we do listen. In fact, we request that you ask us for products you cannot find elsewhere. Maybe we can help you find it, or maybe we can make it for you. New products are important to us, and we will always listen to your needs. You are important to us. You are our customer!

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