4s3™ Semi-Automatic Sheet Heat Sealer

Automatic sealing process for unmatched sealing consistency

HIGHEST FLEXIBILITY

EASY HANDLING

SIMPLE INSTALLATION

ROBOTIC INTEGRATION

REPRODUCIBLE SEALING

ECONOMIC EFFICIENCY

SET
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OPERATE CLOSE

4S³

Fast - Simple - Flexible

- **Reproducible sealing quality and performance**
  Consistent and uniform sealing

- **Intuitive operation**
  Easy set-up of sealing temperature and time

- **Compatible with a wide range of plates and seals**
  Highest flexibility

4titude®

4s3™ Semi-Automatic Sheet Heat Sealer

The 4s3™ is a semi-automatic sheet heat sealer which is compatible with a wide range of seals and plates of differing designs and heights.

With variable temperature and time settings, sealing conditions are easily optimised to produce a 100% tight seal, eliminating sample loss.

Plate and seal are placed on the holder, the "Operate" button is pressed and the drawer automatically closes. The sealing process is controlled by an electric mechanism providing consistent plate sealing, eliminating variation and giving reliable sealing every time.

- Automatic sealing process for unmatched sealing consistency
- Variable temperature and time settings for easy optimisation of sealing conditions
- Compatible with a wide variety of consumables
- Simple, single button operation
- Rapid heating element for fast start-up
- Real-time temperature display
- Auto stand-by function to save energy
- Auto switch off function for added safety
- RS-232 serial port enables full integration with robotic automation systems
- Full range of heat seals available
- Small footprint
- Low temperature sealing for use with adhesive seals

Real-time temperature display

Features

Flexibility of Plate Format
- Compatibility with a wide range of plate types with a maximum height of 60 mm
- The following plate formats can be used with the appropriate plate adapter:
    - Standard SBS footprint PP & PS plates & deepwell blocks
    - PCR plates (skirted, semi-skirted and non-skirted formats)

Quick and Simple Installation
- Plug & play
- No set-up necessary

Reproducible Sealing
- Reproducible sealing by applying a fixed pressure and accurate sealing time and temperature
- Adapters and sealing aids for seal optimization

Adapters
- Deep well plates and most other skirted plates can be sealed on the standard plate support adapter (4ti-0615, included)
- For all other 96 well PCR plates, an additional plate support adapter (4ti-0625, optional) must be used
- Both adapters can also be combined for easier handling of shallow plates such as 384 well PCR plates
- For best sealing results with Random Access seals, 4 different adapters are available to offer the perfect plate support and seal alignment (see last page)
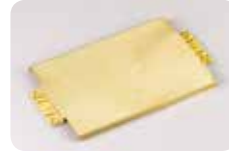
4ti-0615 Plate Support Adapter, Standard
For skirted 96 / 384 well plates

4ti-0625 Plate Support Adapter, PCR 96
For 96 well PCR plates

Sealing Aids

- A weighted platen (4ti-0602) for use with deep well blocks can be ordered separately
- A sealing frame for use with all other plate designs is supplied when ordering the optional 4ti-0625 plate support adapter

4ti-0602
Weighted Sealing Platen
For use with deep well blocks

4ti-0612
Sealing Frame
For use with 4ti-0625

Easy Handling

EASY HANDLING

- The rapid heating element allows for a quick start-up within minutes
- The temperature is displayed in real-time so that the heating up process can be monitored
- Simple one button operation

Operation in 6 Easy Steps

Step 1 Set temperature   **Step 2** Set time   **Step 3** Load plate & seal

Step 4 Press "Operate"   **Step 5** Automatic sealing   **Step 6** Sealed plate

RS-232 Port for Automation Integration

ROBOTIC INTEGRATION

- The 4s3™ has an RS-232 port to enable it to be integrated into most automated systems
- SiLA compatible – quick and easy integration with other SiLA compliant devices using the SiLA driver

SiLA Rapid Integration®

Energy Saving Functions

ECONOMIC EFFICIENCY

- When the unit is left idle it automatically switches into standby mode, during which the temperature of the heating element is reduced to 60°C to save energy
- When the sealer is left idle for longer periods it switches off automatically for added safety
- Standby times and switch-off modes can be adjusted to suit your needs

Sealing Solutions

Heat sealing is the gold standard in plate sealing. It prevents sample loss and maximises sample security by ensuring a complete seal and preventing evaporation, leakage and contamination.

You have the option to choose your seal based on a wide variety of properties offered, including peelability, pierceability, gas permeability, optical clarity, temperature stability and solvent resistance.

Also see www.4ti.co.uk/seal/heat-seals

FrameSeal™ Heat Sealing Frames

4titude® offers heat sealing sheets held within a disposable, rigid, stackable frame that are compatible with the 4s3™ heat sealer.

A FrameSeal™ can be placed either manually, or with a robotic gripper, onto a wide range of skirted and semi-skirted microplates (including PCR plates). After sealing, the frame can be removed by tearing along pre-cut lines to leave the heat seal in place on the plate surface.

4titude®

4s3™ Heat Sealer & The Random Access Range

Random Access plates provide the greatest flexibility in PCR plates, affording handling of individual wells in a 96 well plate format.

The 4s3™ Heat Sealer allows for sealing of Random Access Plates in one step using Random Access heat seal sheets – 96 individual seal spots on a removable backing. This results in individually sealed tubes that are pierceable, allowing for easy sample access.

The corresponding Random Access adapter provides optimal support and alignment of Random Access seals for easy, reproducible sealing of individual wells.

For easy alignment, 4 pins are located on the adapter that the pinholes on the sealing sheets easily slide on to. Correct alignment can easily be checked thanks to the material between the seal spots being clear.
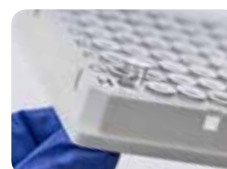

Place Random Access Plate on adapter

Align Random Access Seal with adapter

After sealing – remove seal backing liner

Individually sealed tubes

Random Access 96 Well Skirted PCR Plate (4ti-0960/RA)

Random Access Pierce Heat Seal Strong (4ti-05381/RA)

4ti-0613

Plate Support Adapter, RA, Low Profile

4ti-0613
For low profile plates

4ti-0613-1
For low profile Break-A-Way plates

4ti-0614

Plate Support Adapter, RA, Standard Profile

4ti-0614
For standard profile plates

4ti-0614-1
For standard profile Break-A-Way plates

Ordering Information

Code	Description
4ti-0655	**4s3™ Semi-Automatic Sheet Heat Sealer** Includes: Universal power supply, power cord, manual, standard plate support adapter (4ti–0615), 12 months parts and labour warranty
4ti-0615	4s3™ Plate Support Adapter, Standard, supplied with the unit, *for skirted 96 and 384 well plates*
4ti-0616	4s3™ Plate Support Adapter, Roche 1536, *for Roche 1536 well PCR plates*
4ti-0625	4s3™ Plate Support Adapter, PCR 96 *for 96 well PCR plates*
4ti-0613	4s3™ Plate Support Adapter Random Access, Low Profile *for low profile plates*
4ti-0613-1	4s3™ Plate Support Adapter Random Access, Low Profile Break-A-Way *for low profile FrameStar® Break-A-Way Plates*
4ti–0614	4s3™ Plate Support Adapter Random Access, Standard Profile *for standard profile plates*
4ti–0614-1	4s3™ Plate Support Adapter Random Access, Standard Profile Break-A-Way *for standard profile FrameStar® Break-A-Way Plates*
4ti-0602	4s3™ Weighted Sealing Platen
4ti-0612	4s3™ Sealing Frame
4ti-0655-11	Warranty extension, second year
4ti-0655-12	Warranty extension, second and third year
4ti-0655-113	Warranty extension, third year

Technical Specifications

Parameter	Specification
Dimension (W x L x H)	181 x 275 x 310 mm
Sealing Temperature Range	60 – 200°C
Sealing Time Range	0 – 10 sec
Weight	9 kg
Power Supply	110/230 V
Power Consumption	300 W (max)
Power Saving Mode	< 20 W
Working Temperature Range	15 – 30°C
Operating Humidity (RH)	0 – 85
Connection	RS-232 serial port

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