



# Thermo Scientific™ ALPS30 Manual Heat Sealer

May 2015

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## Symbols Used in Manual

The following advisory symbols are used in this manual.

**Table 1: Advisory Symbol Meanings**

 <b>DANGER</b>	Indicates a Risk of Electric Shock which could, if not avoided, result in severe injury or death.
 <b>DANGER</b>	Indicates a Burn Hazard which could, if not avoided, result in severe injury or death.
 <b>DANGER</b>	Indicates a Risk of Explosion which could, if not avoided, result in severe injury or death.
 <b>WARNING</b>	Indicates a hazardous situation which could, if not avoided, result in severe injury or death or severely damage the unit.
 <b>CAUTION</b>	Indicates a hazardous situation which could, if not avoided, result in minor or moderate injury or degrade or impair the functionality of the unit.
 <b>CAUTION</b>	Indicates a Risk of Crush hazard due to moving parts which could, if not avoided, result in minor or moderate injury.
 <b>NOTE</b>	Advisory note or other useful information.

# 2

## Safety Precautions and Limitations of Use

It is essential that all users of this equipment fully read and understand the following safety precautions and limitations of use before installing or operating the ALPS30 Manual Heat Sealer.

IMPORTANT	
 WARNING	The protection provided by this equipment may be impaired if it is not used in a manner described in this manual.
 WARNING	<p>It is essential that the user of this equipment is aware of the potential hazards associated with the unit and its accessories.</p> <p>All operators should be familiar with the safety precautions and warnings given in these instructions before attempting to operate the unit.</p> <p>Improper use of this unit or its accessories may impair their functionality and invalidate the manufacturer's warranty.</p>

Unit Handling Precautions	
 CAUTION	Care should be taken not to drop the unit or subject it to rough physical handling, both during normal use and during transportation and storage.
 WARNING	<p>The unit should be held by the handle when being lifted or moved. Do not lift the unit by any other part of the casework.</p> <p>Care should be taken when lifting due to the unit's weight.</p>

Unit Installation and Operating Environment	
 <b>DANGER</b>  <b>WARNING</b>	<p>The ALPS30 unit is designed for indoor laboratory use only. The acceptable operating temperature range is 65 to 85°F (18 to 30°C), with a relative humidity of 20 to 80% non-condensing, at a maximum altitude of 7200 ft (2200 m) above sea level.</p> <p>If the unit is stored in conditions outside of these ranges, it must be left to stand <u>unpowered</u> until it has acclimatized to within these environmental limits before being powered.</p>
 <b>DANGER</b>	<p>Use only the AC mains power cord provided with the unit or as specified in <i>Technical Specifications</i></p> <p>The unit must be connected to a suitably grounded mains power supply, with appropriate ground-leakage and over-current protection.</p>
 <b>WARNING</b>	<p>Always ensure that the mains power connector is securely inserted into the rear of the unit and any excess power cord does not pose a potential trip or pull hazard.</p>
 <b>DANGER</b>	<p>Do not operate the unit in any area which is, has been, or is thought to have been exposed to explosive or flammable gases, vapors, or liquids.</p>
 <b>WARNING</b>	<p>The unit must be installed and operated on a solid, stable, and level working surface.</p>

General Operating Precautions	
 <b>DANGER</b>	<p>Ensure that the power is switched off at both the AC mains supply outlet and at the back of the unit before inserting or removing the mains power cord.</p>
 <b>DANGER</b>	<p>The HEATER PLATE reaches a temperature of 340°F (170°C) and will remain hot for a considerable time after being turned off.</p> <p>Extreme care must be taken not to touch the HEATER PLATE as it will cause a severe burn injury.</p>

General Operating Precautions	
 DANGER	<p>The unit is intended for use with plates containing biological samples only.</p> <p>Never use the unit to seal any explosive, volatile, or highly reactive substances or chemicals.</p>
 CAUTION	<p>There is a possible finger crush hazard due to the moving parts of the HANDLE and PLATE CARRIER.</p> <p>Care should be taken when operating the HANDLE.</p>

Unit Maintenance and Serviceability	
 DANGER	<p>There are no user or operator serviceable parts inside the unit.</p> <p>Do not remove the unit casework.</p> <p>Removal of the unit's casework will void the manufacturer's warranty and may expose the user to a Risk of Electric Shock resulting in serious injury or death.</p>
 DANGER	<p>Once installed, the EXTERNALLY ACCESSIBLE UNIT FUSE will only blow under a fault condition. This FUSE should only be changed after the unit has been thoroughly inspected by a qualified technician. See <i>Replacing the Unit Fuse</i> for details.</p>
 DANGER	<p>Always switch off the unit and disconnect the power cord before performing any cleaning or decontamination procedure.</p> <p>If liquid is spilled into or over the unit, switch off the unit and disconnect the power from the AC mains outlet <u>before</u> attempting to deal with the spillage.</p>
 CAUTION	<p>Ensure that the HEATER PLATE has cooled down to room temperature before performing any cleaning operation and before moving or storing the unit.</p>
 CAUTION	<p>The use of harsh chemicals or cleaning agents may damage the unit and degrade its performance.</p> <p>Always follow the cleaning and decontamination procedures specified in <i>Routine Cleaning and Inspection</i> and <i>Decontamination Procedure</i> sections of this instruction manual.</p>

Unit Maintenance and Serviceability	
 CAUTION	Do not autoclave any part of the unit or its accessories.

# 3

## Regulatory Limitations of Use

Declaration of Conformity	
   ELECTRICAL SAFETY E113628	<p>Thermo Fisher Scientific affirms that this product fulfills the essential requirements of the Low Voltage Directive (LVD) 2006/95/EC and the EMC Directive 2004/108/EC, when installed and operated in accordance with the instructions in this manual.</p> <p>The ALPS30 unit has been type tested by Trac Global (UKAS approved test facility and UK appointed Notified Body) against the EMC Requirements listed below, and issued Certificate No 6660/10 and 6661/10.</p>

Safety and EMC Requirements	
SAFETY	<ul style="list-style-type: none"><li>EN 61010-1:2010, EN 61010-2-051:2003</li><li>UL 61010-1:2001 2nd Edition (CAN C22.2 CSA 61010-1)</li></ul>
EMC	<ul style="list-style-type: none"><li>EN 61326:2006, Class B</li><li>FCC CFR 47 Parts 15.107 and 15.109, Class B</li></ul>

RoHS and WEEE Directive Compliance	
	<p>This product is compliant with the requirements of the RoHS2 Directive 2011/65/EU for Electrical and Electronic Equipment. Where applicable, the ALPS30 unit should be disposed of in accordance with the European Union WEEE Directive 2002/96/EC on Waste Electrical and Electronic Equipment. Do not dispose of this product into unsorted municipal waste or public landfill. Please refer to <i>Product Disposal</i> section for details of how to correctly dispose of this product.</p>

The ALPS30 unit is designed and manufactured under ISO 9001 by:

**Thermo Fisher Scientific**

75 Panorama Creek Drive

Rochester, NY 14625

1-585-586-8800 (US Toll-free: 800-625-4327)

# 4

## Unit Description

### Description

The Thermo Scientific™ ALPS30 Manual Heat Sealer is a hand-operated microplate heat sealer that provides a safe and controlled method for sealing plastic sample plates to protect the samples from evaporation and contamination during storage.

### Intended Use

The ALPS30 Manual Heat Sealer is intended to apply a consistent, secure, tight seal around individual wells, eliminating sample loss through evaporation and cross contamination between wells. The Heat Sealer is designed to provide sealing consistency in low throughput labs. Heat sealing offers superior sample protection of storage and reaction plates in applications including compound storage, sample archiving, and Polymerase Chain Reaction (PCR).

The ALPS30 Heat Sealer is compatible with virtually any height microplate or block, including PCR plates, by using the three ADAPTER BLOCKS included with the unit (see *Table 3: Plate and Adapter Block Types*). Choose from a wide range of heat seals — including pierceable, optically clear, and permanent — for any application (see *Table 4: Recommended Film and Foil Types*).

## Components

The ALPS30 Manual Heat Sealer has the following external features:

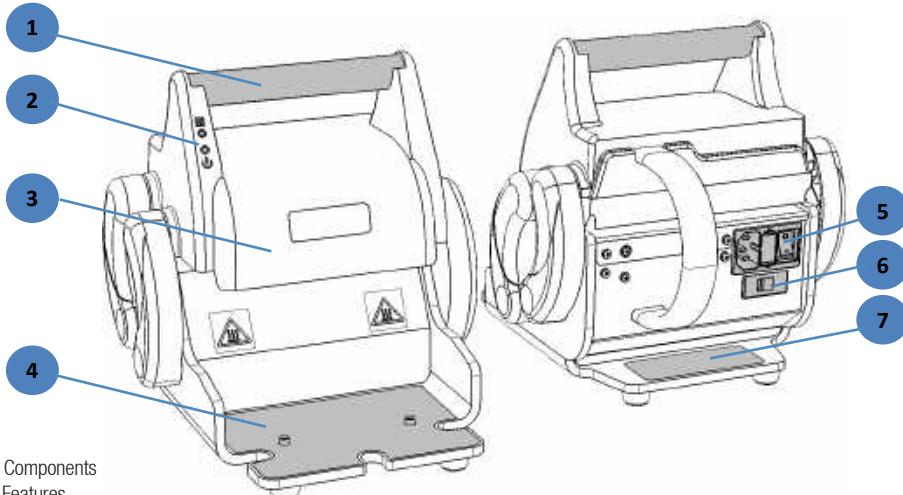
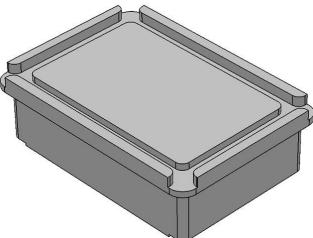
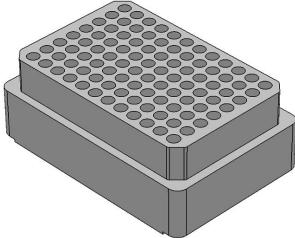
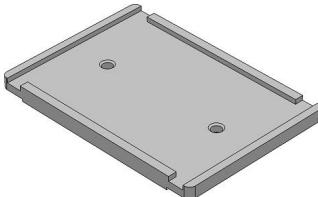


Figure 1: Unit Components and Features

Table 2: Unit Features

1	Seal Activation Handle	
2	Status Indicator LEDs	See <i>Status Indicator LEDs</i>
3	Heater Plate (Internal)	
4	Adapter Plate Carrier	
5	Power Inlet, On/Off Switch, and Fuse Holder	See <i>Unit Installation</i>
6	Mains Voltage Selector	See <i>Unit Installation</i>
7	Product Information Label	

The ALPS30 Manual Heat Sealer comes with three ADAPTER BLOCKS to accommodate a range of sample plates and consumables. The ADAPTER BLOCK types and suitable plate types are listed in *Table 3: Plate and Adapter Block Types*.

Table 3: Plate and Adapter Block Types	
Adapter Blocks	Suitable Plate Types
	96-Well Microtiter Plate 384-Well Microtiter Plate 96-Well Skirted PCR Plate
	96-Well Semi-skirted PCR Plate 96-Well Unskirted PCR Plate
	Deepwell Plates
Plate Material Types	Polypropylene, Polyethylene, or Polystyrene

Other specialist ADAPTER BLOCKS may be available on request. Please contact your distributor for details.

A comprehensive range of Thermo Scientific clear films and foils are available. Please contact your distributor for details.

Table 4: Recommended Film and Foil Types					
	Description	Compatible Plate Material	Sealing Conditions	Seal Integrity Range	Applications
Films	Clear Seal	PP, PS, PE	1.5 to 2.5 seconds at 165 to 170°C	-200 to 90°C and up to 120°C with cycler pressure	Suitable for fluorescence and colorimetric applications; suitable for PCR applications with screw-down or clip-down heated lid thermal cyclers only
	Clear Seal Diamond	PP, PS, PE, COC	1.5 to 3.0 seconds at 170°C	-80 to 120°C	Ideal for fluorescence and colorimetric applications; suitable for PCR applications with screw-down or clip-down heated lid thermal cyclers only
	Clear Seal Strong	PP	1.5 to 2.0 seconds at 170°C	-80 to 120°C	Clear for sample inspection; due to strong, unpeelable seal properties, it is suitable for storage and disposal of hazardous material; also suitable for PCR applications
Foil	Thermo-Seal	PP	1.5 to 2.5 seconds at 165 to 170°C	-80 to 120°C	Long term storage including storage at low temperatures; transportation and high temperature applications such as PCR, including use in water bath thermal cyclers
	Easy Pierce	PP, PE	0.5 to 3.0 seconds at 165 to 175°C	-80 to 80°C and up to 120°C with cycler lid pressure	Formats where piercing is a useful method for sample retrieval; second seal can be applied over existing seal; suitable for PCR with screw-down lid
	Easy Pierce 20 µm	PP, PE	0.5 to 2.0 seconds at 165 to 175°C	-80 to 80°C and up to 120°C with cycler lid pressure	Well suited for 384-well formats where piercing is a useful method for sample retrieval; suitable for PCR with screw-down lid
	Easy Peel	PP, PE, COC	1.5 to 2.5 seconds at 165 to 170°C	-200 to 90°C and up to 120°C with cycler pressure	Ideal for long term storage at low temperatures; seal can be applied, removed and a new seal applied several times; suitable for PCR with screw-down heated lid thermal cyclers only

# 5

## Unit Installation

Before installing the ALPS30 unit, verify that the delivery is complete and that the unit and any accessory parts are intact and free from any signs of transportation damage. Ensure that all external and internal packaging has been removed from the unit before installation.



NOTE

Please retain all packaging for future transportation and storage of the unit and its accessories.

The ALPS30 unit should be installed in a location which meets the following requirements:

- Safe and suitable operating environment (see *Safety Precautions and Limitations of Use*)
- Solid, stable, and level working surface
- At least 4 in. (10 cm) clearance around the unit to adjacent objects and walls
- Grounded AC mains power connection (see *Technical Specifications*)



WARNING

Please observe and abide by the Unit Installation and Operating Environment safety precautions and preconditions listed in *Safety Precautions and Limitations of Use* section.

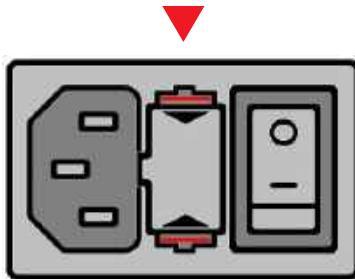
It is important to check that the MAINS VOLTAGE SELECTOR SWITCH on the rear of the unit is set to the correct position for the desired operating voltage, and that the correct fuse type is fitted in the FUSE HOLDER (see *Table 5: Mains Voltage Selection*).

Table 5: Mains Voltage Selection		
Operating Voltage	110 to 120 V AC	220 to 230 V AC
Voltage Selection	115	230
See <i>Components</i> for switch location (  ) on unit rear panel.		
Fuse Rating	3.15 AH	1.6 AH



Ensure that the correct fuse type is fitted in the MAINS INLET FUSE HOLDER for the desired voltage selector switch value. See *Table 5: Mains Voltage Selection* for details.

Verify or check the fuse using the following procedure:



1. Remove the AC plug from the POWER INLET MODULE.
2. Use a small, flat-bladed screwdriver to push the two securing tabs inwards (highlighted in red) and pull out the FUSE HOLDER.
3. Fit the correct fuse in the lower position only.
4. Push the FUSE HOLDER back into the POWER INLET MODULE.

Install and test the ALPS30 unit using the following procedure:

1. Place the unit on the suitably selected working surface (as specified above).
2. Connect the unit to the AC mains power outlet using the mains power cord supplied or as specified in *Technical Specifications*.
3. Switch the mains power on at the supply outlet first, and then switch the unit on using the POWER SWITCH located at the rear of the unit. (See *Components* for POWER SWITCH location.)
4. Verify the unit is stable and safe by performing a trial sealing operation, as described in *Performing a Sealing Operation*.



If the unit has been stored in a cool environment, it must be left to stand unplugged until it has acclimatized to the new room temperature before connecting to power.

# 6

## Unit Operation



Please ensure that you have read and fully understand all of the *Safety Precautions and Limitations of Use* before attempting to operate the ALPS30 unit.

### Status Indicator LEDs

The ALPS30 unit operates at a fixed sealing temperature and requires no user set-up or controls. There are two status indicator LEDs on the front of the unit with the functions listed in *Table 6: Status Indicator LEDs*.

Table 6: Status Indicator LEDs	
	Amber HEATER Indicator: On – HEATER PLATE is warming up Off – HEATER PLATE is cooling down Flashing – HEATER PLATE at 340°F ±5°F (170°C ±2°C)
	Green POWER Indicator: On – Unit switched on Off – Unit switched off (or no power)

When the unit is switched on, the green POWER LED will illuminate and the unit will automatically start heating to 340°F (170°C). This is indicated by the amber HEATER LED being on.

Once the HEATER PLATE has reached the correct temperature to perform sealing (within 5°F of the 340°F set point) the HEATER LED will start flashing, indicating that the ALPS30 unit is ready for use.



NOTE

If a fault condition occurs, the HEATER LED may illuminate but the HEATER PLATE will remain cold. See *Over-Temperature Safety Cutout* for details.

## Performing a Sealing Operation

Various types of plastic sample plates may be loaded onto a PLATE CARRIER and heat sealed using a suitable foil or clear film. See *Table 4: Recommended Film and Foil Types* for details.

A typical operating sequence is:

1. Switch the ALPS30 sealer on at the rear of the unit and allow sufficient time for it to reach temperature (the HEATER LED will start flashing).
2. Using a suitable ADAPTER BLOCK (listed in *Table 3: Plate and Adapter Block Types*), load the sample plate onto the PLATE CARRIER and add the sealing film on top, right side up.



DANGER

Care should be taken not to touch the surface of the HEATER PLATE while loading the sample plate.

3. Grasp the HANDLE with one or two hands as needed, and pull the HANDLE forward and down until the HEATER PLATE contacts the sample plate.



CAUTION

Do not apply more force to the handle than is necessary to keep the heater in contact with the sample.



4. When the required amount of time has passed, return the HANDLE to its upmost position\*.



CAUTION

Leaving the HANDLE down for too long could damage the sample plate and degrade the seal quality.



WARNING

The sample plate and film/foil may remain hot for several seconds after being removed from the unit.

\*The time taken to successfully seal a sample plate may vary with both plate and film/foil types. For optimum seal integrity, the sealing time may need to be adjusted empirically to achieve the desired seal quality.

# 7

## Maintenance and Servicing

Although the ALPS30 unit does not require scheduled maintenance or servicing, the operator should regularly clean the unit and inspect it for any defects, as described in *Routine Cleaning and Inspection*.



DANGER



WARNING

Please observe and comply with all of the Unit Maintenance and Serviceability precautions listed in *Safety Precautions and Limitations of Use*.

Never remove the unit casework. There are no user or operator serviceable parts inside the unit.

Always switch off and unplug the unit before performing any cleaning or disinfecting tasks.

For technical and service related inquiries, please contact your distributor or Thermo Fisher Scientific at the address given in *Technical Support*.

## Replacing the Unit Fuse

The unit fuse should only be replaced by a qualified technician.



The unit fuse may blow as a result of an internal unit fault or if the VOLTAGE SELECTOR SWITCH has been incorrectly set (see *Unit Installation*). This fuse should only be changed after the unit has been thoroughly inspected and must be replaced with the exact type specified in *Technical Specifications*.

Thoroughly inspect the unit for any signs of damage, loose components, or liquid spillage. If in doubt, please contact Thermo Fisher Scientific at the number given in *Technical Support*.



The FUSE HOLDER is removed by disconnecting the mains power cord and then using a small, flat-bladed screwdriver to carefully unclip and pull open the FUSE HOLDER (see *Unit Installation*).

Verify that the new fuse is the correct one for the operating voltage being used (see *Table 5: Mains Voltage Selection*). After replacing the fuse, push the FUSE HOLDER firmly back into the POWER INLET MODULE.

The unit must be safety tested for excess current leakage before being repowered from the mains supply.

## Over-Temperature Safety Cutout

The unit is fitted with a non-resettable, thermal fuse which blows if the HEATER PLATE temperature exceeds 385°F (195°C).

In the unlikely event of a fault condition, this fuse will permanently disable the heater to protect the user and the unit from injury or damage. If this occurs, the amber HEATER LED will illuminate, but the HEATER PLATE will remain cold, and the ALPS30 unit will need to be returned for repair.

## Routine Cleaning and Inspection

The unit casework should be cleaned and inspected at regular intervals and whenever contamination or spillage occurs.

Clean and inspect the ALPS30 unit using the following procedure:

1. Switch off the unit and disconnect the power before performing any inspection checks or cleaning, and ensure that the HEATER PLATE has cooled down to room temperature before handling the unit.
2. Before cleaning, always inspect the unit casework, HEATER PLATE, and all moving parts for any signs of wear, damage, cracks, or other defects.
3. Wearing suitable PPE, clean the casework using a damp cloth soaked with a disinfectant solution (such as Virkon™).
4. Carefully clean the HEATER PLATE surface to remove any debris or sealing material.
5. Remove any debris from around or between the moving parts of the handle mechanism.
6. Check and clean the ADAPTER BLOCKS.



After cleaning, ensure that the unit is thoroughly dry, especially around the POWER INLET MODULE, before reconnecting the power cord and switching on the unit.

## Decontamination Procedure

The unit and accessories must be decontaminated using the following procedure before being stored or transported.

### Certificate of Decontamination

We respect the health and safety of our customers and employees and request that any products or accessories being returned are decontaminated in accordance with the procedure below.

#### 1. Decontamination Procedure

Thoroughly clean all outside surfaces of the product (including any accessories, power cords, manuals, packaging, etc.) with a damp cloth soaked with suitable disinfectant solution (such as Virkon™).

Allow to dry fully before packing.

#### 2. Decontamination Declaration

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Product Code: AB-0400

Serial Number: \_\_\_\_\_

Reason For Return: \_\_\_\_\_

Where Product Used: \_\_\_\_\_

Please select the appropriate option(s) below:

I certify that I have decontaminated the product as per the above procedure.

Decontaminant Used: \_\_\_\_\_

I certify that the product has not been exposed to any chemical or biological materials.

Title: \_\_\_\_\_ Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Telephone: \_\_\_\_\_ Email: \_\_\_\_\_

## Transportation and Storage

The ALPS30 unit and its accessories must be thoroughly decontaminated using the *Decontamination Procedure* before being placed in its original packaging for transportation or storage.



WARNING

See *Technical Specifications* for the acceptable range of storage and transportation environmental conditions.

Always ensure that the unit and accessories are completely dry and free of any condensation before being packed.

## Product Disposal

At end-of-life, this product must be disposed of in accordance with your local authority regulations for the disposal of potentially hazardous waste and electronic equipment.

The unit and its accessories must be decontaminated using the *Decontamination Procedure* before disposal or shipping. Do not dispose of this product into unsorted municipal waste or public landfill.



Do not dispose of this product into unsorted municipal waste or public landfill.

Please contact your distributor (or Thermo Fisher Scientific at the address given in *Technical Support*) for details of how to correctly dispose of this product.

# 8

## Warranty and Returns

Thermo Fisher Scientific warrants the ALPS30 Manual Heat Sealer to be free from defects in materials and workmanship when purchased new and installed and operated in accordance with the instructions of this manual, and will repair or replace at their discretion any unit or accessory which exhibits such defects.

In no event will Thermo Fisher Scientific be liable for any indirect, incidental, or consequential damages resulting from any defect or warranty claim.



NOTE

Unspecified use or unauthorized modification of any part of the ALPS30 unit or its accessories or the use or attachment of any adapter or peripheral not supplied, specified, or sanctioned by Thermo Fisher Scientific will invalidate this warranty.

This warranty is provided to the original purchaser of the product for one year from the date of purchase.

Under the terms of this warranty, the product must be returned in its original packaging, transportation prepaid by the sender, with a copy of the Proof of Purchase and a detailed description of the problem.



WARNING

The product must be decontaminated using the *Decontamination Procedure* and a Certificate of Decontamination supplied with any return.

If the product is considered too hazardous to be shipped, please contact Thermo Fisher Scientific at the number given in *Technical Support* for further instructions.

Please contact your distributor (or Thermo Fisher Scientific) to receive authorization to return the product.

# 9

## Technical Support

For technical support of the ALPS30 Heat Sealer, contact the following:

### **North America**

Thermo Fisher Scientific  
75 Panorama Creek Drive  
Rochester, NY 14625  
Tel: +585 586 8800  
1 800 625 4327

Email: [technicalsupport@thermofisher.com](mailto:technicalsupport@thermofisher.com)

### **Europe (UK)**

Thermo Fisher Scientific  
Robert-Bosch-Straße 1  
63505 Langenselbold  
Germany  
Tel: +49 (0) 6184 906 000  
Email: [orders.labequipment.de@thermofisher.com](mailto:orders.labequipment.de@thermofisher.com)

# 10

## Technical Specifications

### Model Type

Model Name ALPS30 Manual Heat Sealer

Catalog No. AB-0400

### Physical Unit Properties

Dimensions (W x D x H) 8.7 x 9.8 x 9.1 in. (220 x 250 x 230 mm)

Weight (without adapter) 8.8 lb (4 kg)

### Mains Supply

Power Cord Rating IEC C13, 3-Core, 5A min

Inlet Module Type IEC C14, DPST, Single Fuse

Supply Voltage Selections 115 110 to 120 V AC  $\pm 10\%$

230 220 to 230 V AC  $\pm 10\%$

Supply Frequency Range 50 to 60 Hz  $\pm 5\%$

Power Consumption 350 W max

Fuse Ratings and Sizes 115 T3.15AH 250V 20 x 5 mm

230 T1.6AH 250V 20 x 5 mm

### Operating Environment

Temperature Range 65 to 85°F (18 to 30°C)

Relative Humidity Range 20 to 80% non-condensing

Maximum Operating Altitude 7200 ft (2200 m) above sea level

## **Storage and Transportation**

Temperature Range 15 to 120°F (-10 to +50°C)

Relative Humidity Range 20 to 95% non-condensing

## **Sealing Parameters**

Temperature Set-point 340°F (170°C) (Non-adjustable)

Temperature Accuracy  $\pm 2^\circ\text{C}$

# Glossary of Terms and Abbreviations

<b>ANSI</b>	American National Standards Institute
<b>Autoclave</b>	To sterilize equipment by subjecting it to high-pressure saturated steam
<b>Deepwell Plate (DWP)</b>	Plate with an SBS footprint featuring 48, 96, or 384 wells with a larger volume than microplates
<b>DWP</b>	Deepwell Plate
<b>EMC</b>	Electromagnetic Compatibility
<b>Microtiter Plate (MTP)</b>	Plate with an SBS footprint featuring 24, 48, 96, or 384 wells
<b>MTP</b>	Microtiter Plate
<b>PCR</b>	Polymerase Chain Reaction
<b>PPE</b>	Personal Protective Equipment
<b>SBS</b>	Society for Biomolecular Screening
<b>Semi-skirted PCR Plate</b>	PCR plate with an outer surrounding half edge
<b>Skirted PCR Plate</b>	PCR plate with an outer surrounding edge
<b>Un-skirted PCR Plate</b>	PCR plate without an outer surrounding edge
<b>Well</b>	A single sample cavity in a Microtiter plate, PCR plate, or Deepwell plate

# Notes

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