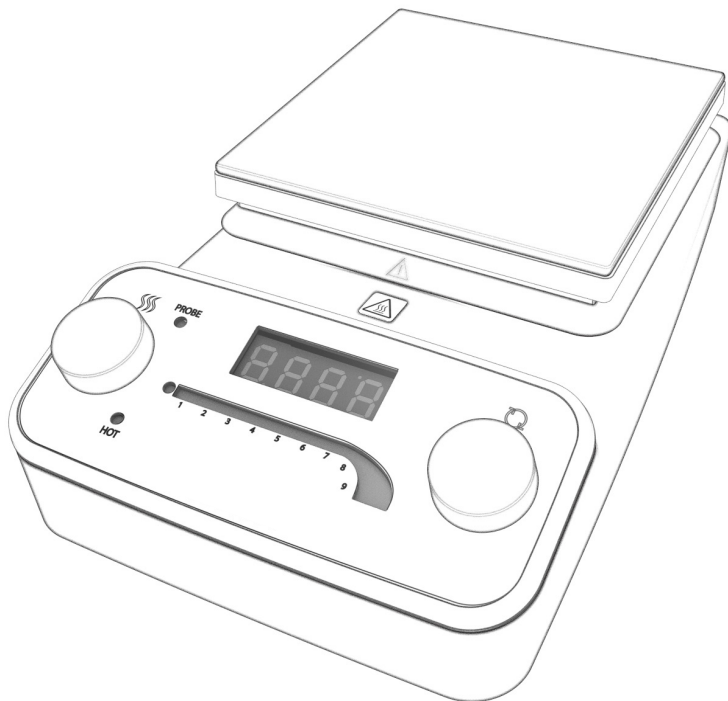


# Cole-Parmer®

## HP-300 & SHP-300 Series

### Digital Hotplates & Hotplate Stirrers



## Instruction Manual

HS100-060-CPB Version 1.3

**Cole-Parmer®**  
essentials

## About This Manual

This manual is designed to assist you in optimal usage of your new digital or analogue hotplate. To get the best performance from your equipment and for your own personal safety, please read these instructions carefully before use

Before discarding the packaging check that all parts are present and correct

### Product Voltages

All Hotplate stirrers and hotplates are available in different voltages (230/120VAC), however, the analogue stirrer is 100-240 VAC compliant

Before initial use, check that the unit you received is the correct voltage for your location



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## Safety Information

This instruction manual contains important operating and maintenance instructions which must be read, understood and followed by the product user. Failure to use this instruction manual may degrade or defeat the protection normally provided by the product. Read this instruction manual prior to product use and keep this information for future reference

### Product Symbols

Throughout this instruction manual the following symbols are shown to identify conditions which pose a hazard to the user, or to identify actions that should be observed. These symbols are also shown on the product or its packaging

	Warning symbol		stir symbol
	Caution hot surface		Hotplate symbol
	Recyclable packing material		Provide lasting protection against microbes, such as bacteria, mould and viruses
	Do not dispose of product in normal domestic waste		

### Warnings

#### *Personal Injury*



- Do not use this product in a manner other than stated in the operating conditions section of the manual as protection provided to the equipment may be impaired
- This equipment is designed for use in laboratory environments by persons knowledgeable in safe laboratory practices
- Do not touch the hotplate or any glass vessel whilst in use

#### *Electric Shock*



- This product must be connected to a grounded power outlet for safe functioning
- Use the power cord supplied with the unit
- Do not open the product case - only qualified service personnel should attempt to repair this product

- Position the product for use so that the power cord can be easily disconnected without having to move the product
- Disconnect the power cord before moving or cleaning the unit
- Ensure the mains power supply conforms to the rating found on the rating label on the underside of the unit
- Never operate the equipment without a connection to earth. Ensure the mains supply voltage is correctly earthed/grounded with current area legislation



#### *Product Damage*

- Keep the product dry and clean
- Do not immerse the product for cleaning
- Do not heat or stir volatile or flammable materials
- These units are not explosion or spark proof
- Do not use the product near volatile or flammable materials
- A ceramic top which is scratched, chipped, chemically etched or otherwise damaged must not be used



## Operating Conditions

Hotplates and stirrers are designed for safe functioning under the following conditions:

- For indoor use in a well ventilated area
- Ensure equipment is used on a dry, non-combustible, solid work surface with at least 300mm suitable clearance all around from other equipment
- Ambient temperature +5°C to +40°C
- Altitude up to 2000m
- Relative humidity not exceeding 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C
- Mains supply fluctuations not exceeding 10% of nominal
- Energy-consuming equipment to be supplied from the fixed installation: Over-voltage category II
- Pollution degree 2



- This equipment is not designed to be used in hazardous atmospheres or with hazardous materials
- Following a mains interruption the unit will not restart

## Unpacking & Contents

### What's Included in the box

- Instruction book
- Mains moulded plug - hot (UK and EURO variants) or hot US variant
- Stuart Hotplate product
- Stir bar x 2 (HH114) - supplied with stirring variants only
- Important notice leaflet - supplied with heating variants only

### Product Identification

Digital Hotplate / Stirrer - 230VAC		
Colour	Metal (Aluminium)	Ceramic
Blue	SHP-300-BS	SHP-300-BC
White	SHP-300-WS	SHP-300-WC

Digital Hotplate - 230VAC		
Colour	Metal (Aluminium)	Ceramic
Blue	HP-300-BS	SHP-300-BC
White	HP-300-WS	SHP-300-WC

Digital Hotplate / Stirrer - 120VAC		
Colour	Metal (Aluminium)	Ceramic
Blue	SHP-300-BS-120	SHP-300-BC-120
White	SHP-300-WS-120	SHP-300-WC-120

Digital Hotplate - 120VAC		
Colour	Metal (Aluminium)	Ceramic
Blue	HP-300-BS-120	HP-300-BC-120
White	HP-300-WS-120	HP-300-WC-120

## Electrical Installation



*THIS EQUIPMENT MUST BE EARTHED*

BEFORE CONNECTION PLEASE ENSURE THAT THE LINE SUPPLY CORRESPONDS TO THAT SHOWN ON THE RATING PLATE LOCATED ON THE OUTER CASE

NOTE: Refer to the equipment rating plate to ensure that the plug and fusing are suitable for the voltage and wattage stated.

The wires in the mains cable are coloured as follows:

BROWN - LIVE

BLUE - NEUTRAL

GREEN/YELLOW - EARTH

Should the mains lead need replacement, a cable of 1mm<sup>2</sup> of harmonised code H05RR-F or H05RN-F connected to an IEC hot condition plug should be used.

IF IN DOUBT CONSULT A QUALIFIED ELECTRICIAN

American mains wire colours required (section Electrical Installation)

Black - LIVE

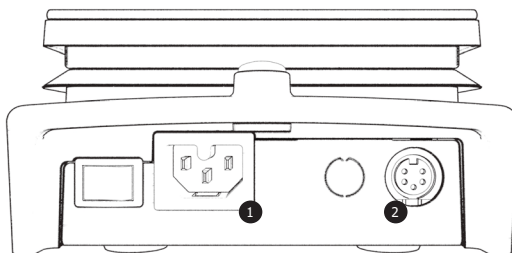
White - NEUTRAL

Green - EARTH/GROUND



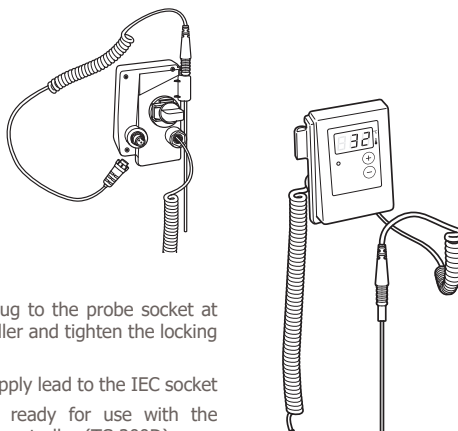
## Product Connections

1. IEC power socket - connect the mains supply cable into this socket
2. DIN socket - Connect the optional External temperature controller into this connector



## Connect To The External Controller

1. Turn the hotplate mains switch to the OFF position at the rear of the hotplate
2. Disconnect the mains cable from the IEC socket
3. Connect the TC-200D controller plug to the DIN probe socket at the rear of the hotplate
4. Connect the probe plug to the probe socket at the rear of the controller and tighten the locking collar
5. Connect the mains supply lead to the IEC socket
6. The product is now ready for use with the external temperature controller (TC-200D)

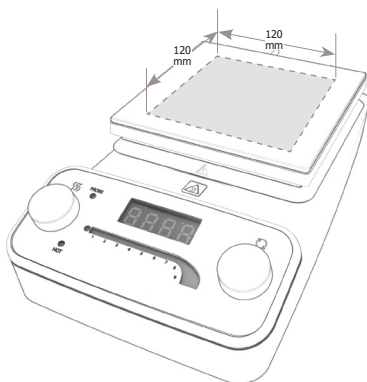


N.B. The TC-200D controller power is supplied by the hotplate

## Ceramic Hotplate Hot Zone

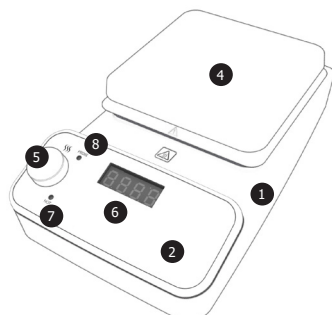
When using the ceramic hotplates at temperatures over 180°C, the base of any vessel must not make contact with the ceramic plate top outside of the hot-zone - this is to avoid damaging the ceramic hotplate surface

Note: Modular heating blocks are not suitable for use with ceramic top hotplates

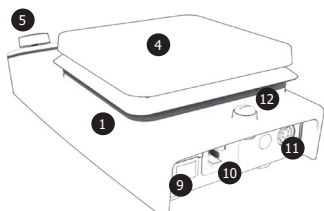


## Digital Hotplate

1. Top casting (\*B=blue or W=white)
2. Control interface
3. Ceramic top plate (C)
4. Aluminium top plate (S)
5. Heater control dial
6. Digital display
7. Hot LED
8. Probe LED
9. Mains on/off switch
10. IEC power socket
11. DIN socket
12. Retort rod fitting



HP-300-\*S, HP-300-\*S-120

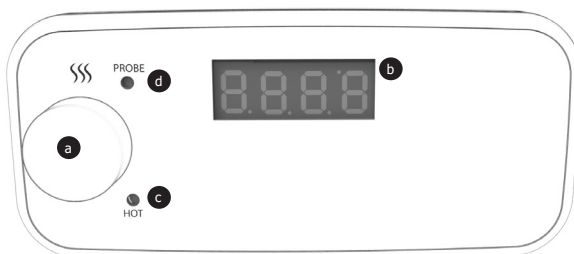


HP-300-\*C, HP-300-\*S-120



## Product Control and Indicators

- Heater control dial - When the dial is pushed in the heater will be turned off and the display will display an alternating OFF message on the screen. It also controls the heating and cooling of the hotplate. The knob is graduated and increases in 5°C steps throughout the temperature range
- Digital display - will display an alternating OFF message on the screen when the heater is turned off. It will also display an alternating HOT message when the plate temperature is above 50°C. When you turn the unit on the unit should be set to minimum set-point which is 25°C. Adjusting the graduated dial will increase the temperature in 5°C steps throughout the temperature range. When you select a set-point temperature, the temperature set will flash to indicate it is stored and revert back to the current temperature
- Hot LED - this LED will flash when the top plate becomes too hot to touch and while the plate temperature is above 50°C for up to 30 minutes even if the unit is disconnected from the electricity supply
- Probe LED - when the TC-200D external controller is plugged into the DIN socket, the probe LED will illuminate

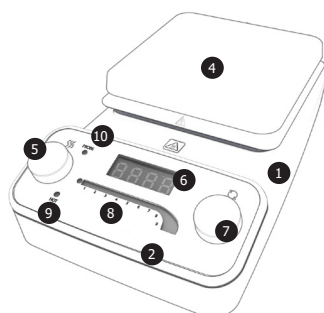


## Instructions for use

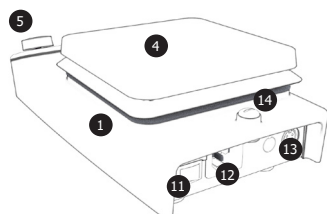
- Place a charged, clean glass vessel with the solution to be heated in the centre of the top plate
- Insert the IEC plug into the IEC socket at the rear of the unit
- Switch the unit on using the mains on/off switch at the rear of the unit
- If the heater function is turned off, (alternating OFF message on the display), press the heater dial to turn on the heating function
- Turn the graduated heater control dial until the display reads the desired temperature (increases in 5°C increments). The current set-point display will flash to confirm the new temperature has been stored and revert back the actual temperature. The scale refers to the temperature of the hotplate and not the temperature of the contents
- When the process is complete, press the heater control dial to stop the heating function.
- Remove the vessel from the unit once cooled

## Digital Hotplate Stirrer

1. Top casting (\*B=blue or W=white)
2. Control interface
3. Ceramic top plate (C)
4. Aluminium top plate (S)
5. Stirrer control dial
6. Digital Display
7. Analogue stirrer dial
8. Analogue stirrer LED display
9. Hot LED
10. Probe LED
11. Mains on/off switch
12. IEC power socket
13. DIN socket
14. Retort rod fitting



SHP-300-\*S, HP-300-\*S-120



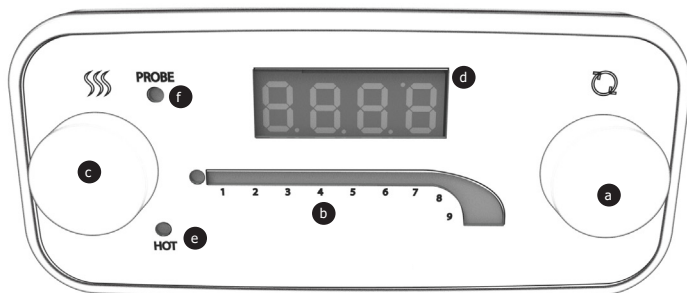
SHP-300-\*C, HP-300-\*C-120

### Product Control and Indicators

- a. Stirrer control dial - When the dial is pushed in the stirrer will remain stationary (LED illuminated but dimly). It also controls the stir speed (clockwise direction only). The knob is graduated and each graduation is approximately 75 rpm
- b. Analogue stirrer LED display - There is an arbitrary scale (1 -9) with 9 LED's and each segment is either dim, normal or bright as you graduate the control dial (approximately 50 rpm) . Turning the knob to the higher number increases the stirrer speed (the maximum speed is 1250rpm (ceramic) to 1400rpm (metal) when scale 9 LED is illuminated fully)
- c. Heater control dial - When the dial is pushed in the heater will be turned off and the display will display an alternating OFF message on the screen. It also controls the heating and cooling of the hotplate. The knob is graduated and increases in 5°C steps throughout the temperature range
- d. Digital display - will display an alternating OFF message on the screen when the heater is turned off. It will also display an alternating HOT message when the plate temperature is above 50°C. When you turn the unit on the unit should be set to minimum set-point which is 25°C. Adjusting the graduated dial will increase the temperature in 5°C steps throughout the temperature range. When you select a

set-point temperature, the temperature set will flash to indicate it is stored and revert back to the current temperature

- e. Hot LED - this LED will flash when the top plate becomes too hot to touch and while the plate temperature is above 50°C for up to 30 minutes even if the unit is disconnected from the electricity supply
- f. Probe LED - when the TC-200D external controller is plugged into the DIN socket, the probe LED will illuminate



### Instructions for use

- Place a vessel with the solution to be heated in the centre of the top plate
- Insert the IEC plug into the IEC socket at the rear of the unit
- Switch the unit on using the mains on/off switch at the rear of the unit
- If the LED is dimly illuminated the stirrer remains stationary. Press the dial to turn the stirrer function on
- Turn the stirrer control dial until the Analogue display reads the desired speed. The current set-point LEDs will flash to confirm the speed has been stored and revert back the actual speed
- If the heater function is turned off, (alternating OFF message on the display), press the heater dial to turn on the heating function
- Turn the graduated heater control dial until the display reads the desired temperature (increases in 5°C increments). The current set-point display will flash to confirm the new temperature has been stored and revert back the actual temperature. The scale refers to the temperature of the hotplate and not the temperature of the contents
- When the process is complete, press the stirrer control dial to stop the stirring function and press the heater control dial to stop the heating function.

- Allow the stir bar to stop rotating and solution to cool down before removing the vessel from the unit

## External Controller (TC-200D)

The TC-200D temperature controller allows accurate temperature control of aqueous and oil based samples in the laboratory and can be used in two different modes:

- As a precise temperature controller from 20 to 200°C
- Digital thermometer from -4 to 325°C

### *Control Mode*

The heat control of the hotplate is disabled, allowing precise control of the sample temperature via the TC-200D temperature controller. The probe illuminated LED indicates communication between the TC-200D and the hotplate

### *Digital Thermometer*

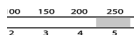
The TC-200D operates as a digital thermometer and the hotplate temperature is controlled by the heater control dial on the hotplate and refer to the surface temperature of the hotplate not the sample





## Troubleshooting

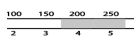
The following error codes are displayed if the instrument detects an error condition. On the digital models the errors are shown as Er1, Er2, etc. on the display. On the analogue models the Er1 condition is shown by flashing the fifth LED on the temperature scale, Er2 would be shown by flashing the fourth LED and so on. Errors Er6 and Er9 are non-fatal errors



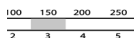
- Er1 – Probe Range Error – If TC-200D reports probe temperature of  $>325^{\circ}\text{C}$  or  $<-99^{\circ}\text{C}$



- Er2 – TC-200D Box Lost Error – Communications with the TC-200D have been lost.



- Er3 – Hotplate Temperature Error – If the hotplate measures its temperature  $>585^{\circ}\text{C}$  or  $<-9.9^{\circ}\text{C}$



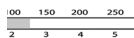
- Er4 – Hotplate Ambient Error – If the temperature sensed inside the unit (not the plate temperature) is too hot



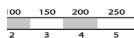
- Er5 – TC-200D Character Error – An unknown character was received from the TC-200D.



- Er7 – Probe Out Error – The instrument detects that the TC-200D probe has been removed from the solution being heated



- Er8 – TC-200D Time-out Error – The TC-200D did not respond to a request in the required time.



- Er10 - fatal error tag

## Product Repair

There are no direct user serviceable components inside this series of products. A list of available replacement parts are available on page 19

Please contact Cole-Parmer or your local distributor for repair or maintenance issues

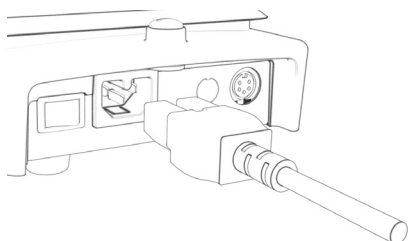


## Product Maintenance

Disconnect power to the product by unplugging the power cord before performing any maintenance or inspection

### General

Inspect the power cord regularly and replace if damaged. Use only replacement power cords available from Cole-Parmer. The unit is fitted with a hot condition IEC socket for fitting to the mains supply (always use correct power cord)



## Fuse Replacement

The dual mains fuses are located inside the unit and are not user replaceable parts





## General Cleaning

- Ensure the top plate is cool and the unit is disconnected from the mains electricity supply
- It is important to keep the product clean and dry
- Remove any exterior liquid spills promptly
- Clean exterior surfaces with a damp cloth and a mild detergent solution
- Do not re-connect to power until all cleaned surfaces are dry
- If liquid gets inside the product, immediately disconnect power to the product and discontinue use. Contact Cole-Parmer for additional instructions regarding interior spills

## Ceramic Top Plate Cleaning

- The ceramic top is highly resistant to chemical attack
- Ensure the top plate is cool and disconnect from the mains electricity
- A damp cloth will normally remove most types of contamination. For more difficult stains a domestic cream cleanser is recommended
- During cleaning and general operation take care not to scratch the surface as this could cause thermal breakage
- A ceramic top which is scratched, chipped, chemically etched or otherwise damaged must not be used



## Optional Accessories

Full Hotplate Range (excluding the Analogue Stirrers SS151, CS151)		
Part Number	Description	Quantity
SR1	Retort rod, 600mm x 12mm diameter	1
TC-200D	Temperature controller	1

### Metal (aluminium) Hotplates and Stirrers Only

A complete range of modular heating blocks for heating round bottom flasks is available for use with metal top hotplates. See the Stuart website for further information

### Footnote:

Modular heating blocks are not suitable for use with ceramic top hotplates

## Replacement Parts

Only spare parts supplied by Cole-Parmer or its agent should be used. Fitting of non-approved parts may affect the performance of the safety features of the product

Replacement Parts		
Part Number	Description	Quantity
US152021	UK Mains Cord Moulded Plug (Hot)	1
US152023	EURO Mains Cord Moulded Plug (Hot)	1
BSSEP013	US Mains Cord Moulded Plug (Hot)	1



## Technical Specifications

Hotplate Stirrers	SHP-300-*S & SHP-300-*S-120	SHP-300-*C & SHP-300-*C-120
Plate material	Coated aluminium/silicon	Glass ceramic
Plate dimensions, mm	150 x 150	150 x 150
Heated area, mm	150 x 150	120 x 120
Heater control	Digital	Digital
Heater power, W	700	500
Max.plate temp, °C	325	450
Stirrer speed, rpm	50 - 1400	50 - 1250
Max. stirring capacity, L*	15	15
Compatible with TC-200D	Yes	Yes
Control accuracy with TC-200D	± 1°C	± 1°C
Dimensions (wxdxh), mm	182 x 300 x 90	182 x 300 x 85
Net weight, kg	2.73	2.68
Power, W	750/920	550/650
Electrical supply	120V, 60Hz, 230V, 50Hz	120V, 60Hz, 230V, 50Hz

Hotplates	HP-300-*S & HP-300-*S-120	HP-300-*C & HP-300-*C-120
Plate material	Coated aluminium/silicon	Glass ceramic
Plate dimensions, mm	150 x 150	150 x 150
Heated area, mm	150 x 150	120 x 120
Heater control	Digital	Digital
Heater power, W	700	500
Max.plate temp, °C	325	450
Max. stirring capacity, L*	15	15
Compatible with TC-200D	Yes	Yes
Control accuracy with TC-200D	± 1°C	± 1°C
Dimensions (wxdxh), mm	182 x 300 x 90	182 x 300 x 85
Net weight, kg	2.31	2.26
Power, W	750/920	550/650
Electrical supply	120V, 60Hz, 230V, 50Hz	120V, 60Hz, 230V, 50Hz



## Product Disposal



The 'crossed wheeie bin' symbol present on the product indicates that the product was planned for use in a country complying with the Waste Electrical and Electronic Equipment (WEEE) EU directive 2012/19/EU. This symbol indicates that the equipment must not be discarded as domestic waste. This product should only be dismantled for recycling by an authorised recycling company. It is the product user's responsibility to decontaminate waste equipment from biological, chemical and/or radiological hazards prior to disposal



Packaging material has been selected such that it may be sorted for recycling

If the equipment has been exposed to contamination, appropriate decontamination certificate is required

If this product or any part of the unit becomes damaged or requires servicing, the product should be returned with a decontamination certificate.

## Your Purchase Record



Cole-Parmer recommends that you record the details of your purchase in the spaces below for your future reference

*Model Number* \_\_\_\_\_ *Serial Number* \_\_\_\_\_

*Date Purchased* \_\_\_ / \_\_\_ / \_\_\_

*Purchased From* \_\_\_\_\_


*Purchase Reference Number* \_\_\_\_\_

## Customer Support



For help and support in using this product please contact Customer Services at the following address

## NOTES

 This product meets the applicable CE Directives and UKCA Legislation for radio frequency interference and may be expected not to interfere with, or be affected by, other equipment with similar qualifications. We cannot be sure that other equipment used in its vicinity will meet these standards and so we cannot guarantee

that interference will not occur in practise. Where there is a possibility that injury, damage or loss might occur if equipment malfunctions due to radio frequency interference, or for general advise before use, contact the manufacturer.

# Ordering Information

Order No.	Series	Model	Legacy SKU
04806-36	SHP-300	SHP-300-BS-120	SD152B/120
04806-37	SHP-300	SHP-300-BS	SD152B
04806-38	SHP-300	SHP-300-WS-120	SD152W/120
04806-39	SHP-300	SHP-300-WS	SD152W
04806-42	SHP-300	SHP-300-BC-120	CD152B/120
04806-43	SHP-300	SHP-300-BC	CD152B
04806-44	SHP-300	SHP-300-WC-120	CD152W/120
04806-45	SHP-300	SHP-300-WC	CD152W
04806-24	HP-300	HP-300-BS-120	SD150B/120
04806-25	HP-300	HP-300-BS	SD150B
04806-26	HP-300	HP-300-WS-120	SD150W/120
04806-27	HP-300	HP-300-WS	SD150W
04806-30	HP-300	HP-300-BC-120	CD150B/120
04806-31	HP-300	HP-300-BC	CD150B
04806-32	HP-300	HP-300-WC-120	CD150W/120
04806-33	HP-300	HP-300-WC	CD150W

Warranty Registration



[sales@norrscope.com](mailto:sales@norrscope.com)

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