

## Safety Hot Plates

In ultra trace element and isotope analysis, hot plates usually come into play at the end of an expensive and time-consuming preparation process. If they are used in a corrosive atmosphere over a long period of time, they present a special risk for a laboratory. They provide a remarkable contribution to contamination and often they are the source of a fire. Since many laboratories are equipped with highly sophisticated instrumentation, even a small fire may cause tremendous contamination, damage and costs.

### The concept for **PicoTrace** Safety Hot Plates

- The temperature controller is separated from the hot plate and positioned outside the aggressive atmosphere either in its own cabinet or integrated into the ventilator cabinet of the clean air laminar flow workstations.
- The hot plate is controlled by a microprocessor, operates with great precision and is highly resistant to wear and tear. The temperature and its regulation parameters are continuously displayed.
- The reliable control of the temperature guarantees reproducible conditions for chemical reactions.
- Both, controller and hot plate are supplied with independent temperature limitation switches.
- The controller is twice protected against overriding a set temperature.
- If its safety elements fail, three independent temperature limitations of the hot plate will react successively. Two of them will be reset, if the temperature of the hot plate has decreased 6 to 10°C. A third limitation (activated by the signal of an independent Pt-100 sensor) finally switches off the power supply of the heating circuit. This circuit has to be reactivated manually after a check of the system.
- The safety functions can be easily checked.

The price for this technical solutions appears to be high. However, in the face of the potential danger growing out of traditional hot plates, it is economical. This high safety standard is absolutely necessary if perchloric and hydrofluoric acid is involved in your preparations.

**Safety Hot Plate SFH 2820 N or HD**

**with a sophisticated high temperature-resistant multiple coating on PFA basis designed for long-lasting preparation processes in a corrosive atmosphere (heating area 280 x 200 mm).**

**Construction:**

The hot plate is made from a massive piece of AlMg-alloy. The metal surface is especially treated to create an extra hard Al<sub>2</sub>O<sub>3</sub> surface of 50 micron thickness. All surfaces, which may come in contact with acids or acid fumes are made of PTFE or an AlMg-alloy coated with PFA. A sandwiched (PTFE-AlMg-alloy) cooling plate reduces heat transfer to the bench underneath. The hot plate is threefold protected against overheating. With **PicoTrace** controllers protection is fivefold. All cables are in a PTFE jacket.

**The hot plates are especially suited for the evaporation of acids during ultra trace element and isotope analysis.**

**Advantages of the hot plate SFH 2820 N or HD:**

- PFA - protected surface on top of a strong corrosion resistant oxide layer: no corrosion, no source of contamination!
- All electrical elements are encapsulated to guard against contact with acid fumes.
- The threefold overheat protection guarantees safety.
- Combined with **PicoTrace** time-temperature controllers, precise control of the temperature and time is possible and the security of the system is considerably enhanced.
- Long lifetime predicted and proofed since years.

**Technical data:**

<b>Dimensions:</b>	<b>L: 350 mm</b>	<b>W: 200 mm</b>	<b>H: 80 mm (variable on request)</b>
<b>Heating area:</b>	<b>L: 280 mm</b>	<b>W: 200 mm</b>	
<b>Weight:</b>	<b>7 kg</b>		
<b>Current:</b>	<b>1000 W / 220-250 V (variable on request)</b>		
<b>Maximum temperature:</b>	<b>240 °C</b>		
<b>overheat limitations:</b>	<b>240 - 265°C (lower limits on request),</b>		

**Safety Hot Plate SFH 5013 N or HD**

**with a sophisticated high temperature-resistant multiple coating on PFA basis  
designed for long-lasting preparation processes in a corrosive atmosphere  
(heating area 500 x 130 mm).**

**Construction:**

The hot plate is made from a massive piece of AlMg-alloy. The metal surface is especially treated to create an extra hard Al<sub>2</sub>O<sub>3</sub> surface of 50 micron thickness. All surfaces, which may come in contact with acids or acid fumes are made of PTFE or an AlMg-alloy coated with PFA. A sandwiched (PTFE-AlMg-alloy) cooling plate reduces heat transfer to the bench underneath. The hot plate is threefold protected against overheating. With **PicoTrace** controllers protection is fivefold. All cables are in a PTFE jacket.

**The hot plates are especially suited for the evaporation of acids during ultra trace element and isotope analysis.**

**Advantages of the hot plate SFH 5013 N or HD:**

- PFA - protected surface on top of a strong corrosion resistant oxide layer: no corrosion, no source of contamination!
- All electrical elements are encapsulated to guard against contact with acid fumes.
- The threefold overheat protection guarantees safety.
- Combined with **PicoTrace** time-temperature controllers, precise control of the temperature and time is possible and the security of the system is considerably enhanced.
- Long lifetime predicted and proofed since years.
- **NEW:** Very large surface; suitable also for 3 PicoTrace subboiling stills

**Technical data:**

<b>Dimensions:</b>	<b>L: 580 mm</b>	<b>W: 130 mm</b>	<b>H: 80 mm (variable on request)</b>
<b>Heating area:</b>	<b>L: 500 mm</b>	<b>W: 130 mm</b>	
<b>Weight:</b>	<b>8 kg</b>		
<b>Current:</b>	<b>1200 W / 220-250 V (variable on request)</b>		
<b>Maximum temperature:</b>	<b>240 °C</b>		
<b>overheat limitations:</b>	<b>240 - 265°C (lower limits on request)</b>		

**Safety Hot Plate SFH 5030 N or HD**

**with a sophisticated high temperature-resistant multiple coating on PFA basis designed for long lasting preparation processes in a corrosive atmosphere (heating area 500 x 300 mm).**

**Construction:**

The hot plate is fabricated from a massive piece of AlMg-alloy. All surfaces, which may come in contact with acids or acid fumes are either made of PTFE or an AlMg-alloy coated with several layers of a sophisticated high temperature coating on PFA basis. This coating is very resistant. It is very strong combined with the metallic surface beneath and shows a very high resistance to vapor diffusion.

A cooling plate reduces the heat transfer to the bench surface underneath the hot plate.

The hot plate is threefold protected against overheating. With **PicoTrace** controllers protection is fivefold. All cables are protected by a PTFE jacket.

**The hot plates are especially suited for the evaporation of acids during ultra trace element and isotope analysis in enhanced aggressive surroundings. It is also recommended for use with the **PicoTrace** Pressure Digestion System DAS.**

**Advantages of the hot plate SFH 5030 HD:**

- Long life
- High mechanical resistance
- PFA - protected surface, therefore: no source of contamination
- Very strong adhesion of the coating to the metallic parts
- High resistance to vapor diffusion.
- All electrical elements are encapsulated to guard against contact with acid fumes
- The threefold overheat protection guarantees safety
- Combined with **PicoTrace** time-temperature controllers, precise control of the temperature and time is possible and the security of the system is considerably enhanced.

**Technical data:**

<b>Dimensions:</b>	<b>L: 500 mm</b>	<b>W: 370 mm</b>	<b>H: 80 mm (variable on request)</b>
<b>Heating area:</b>	<b>L: 500 mm</b>	<b>W: 300 mm</b>	
<b>Weight:</b>	<b>16 kg</b>		
<b>Current:</b>	<b>2500 W / 220-250 V (variable on request)</b>		
<b>Maximum temperature:</b>	<b>240 °C</b>		
<b>overheat limitations:</b>	<b>240 - 265°C (lower limits on request)</b>		

**Safety Hot Plate SFH 2870 N or HD**

**with a sophisticated high temperature-resistant multiple coating on PFA basis designed for long-lasting preparation processes in a corrosive atmosphere (heating area 280 x 700 mm).**

**Construction:**

The hot plate is made from a massive piece of AlMg-alloy. The metal surface is especially treated to create an extra hard Al<sub>2</sub>O<sub>3</sub> surface of 50 micron thickness. All surfaces, which may come in contact with acids or acid fumes are made of PTFE or an AlMg-alloy coated with PFA. A sandwiched (PTFE-AlMg-alloy) cooling plate reduces heat transfer to the bench underneath. The hot plate is threefold protected against overheating. With **PicoTrace** controllers protection is fivefold. All cables are in a PTFE jacket.

**The hot plates are especially suited for the evaporation of acids during ultra trace element and isotope analysis.**

**Advantages of the hot plate SFH 2870 N or HD:**

- PFA - protected surface on top of a strong corrosion resistant oxide layer: no corrosion, no source of contamination!
- All electrical elements are encapsulated to guard against contact with acid fumes.
- The threefold overheat protection guarantees safety.
- Combined with **PicoTrace** time-temperature controllers, precise control of the temperature and time is possible and the security of the system is considerably enhanced.
- Long lifetime predicted and proofed since years.
- **NEW:** Very large surface; suitable also for 3 PicoTrace subboiling stills

**Technical data:**

<b>Dimensions:</b>	<b>L: 350 mm</b>	<b>W: 700 mm</b>	<b>H: 80 mm (variable on request)</b>
<b>Heating area:</b>	<b>L: 280 mm</b>	<b>W: 700 mm</b>	
<b>Weight:</b>	<b>15 kg</b>		
<b>Current:</b>	<b>3000 W / 220-250 V (variable on request)</b>		
<b>Maximum temperature:</b>	<b>240 °C</b>		
<b>overheat limitations:</b>	<b>240 - 265°C (lower limits on request)</b>		