

# HOT PLATES

**(RESISTIVE/INDUCTION HEATING)****Feed back controlled****INTRODUCTION:**

MHTHP series of temperature controlled These MHTHP series of temperature controlled hot plates finely controls the interface surface/fluid temperature optimally, irrespective of its volume and weight or any thermo dynamical/ rheological parameters of fluids under heating, using feedback/ feed forward control topologies which ensures homogeneous thermal distribution across the hot plate surface. These hot plates are available on resistive or eddy current heating.

**Application & Benefits:**

These finds application in Pharmaceutical, Cosmetics & Synthetics, genetic engineering, Petrochemical, Paper and Environments application Metal Finishing and Corrosion Control, petrochemical, Polymer manufacturing, Medicines, biotechnology, medicine, Process control and Chemical Engineering, Semiconductors/ Ceramics application.

**Operating principle:**

Surface temperature is controlled using high frequency chopper control system, working in current /switch mode, under thermal feedback control. Multi point sensing ensures uniform thermal distribution across the plates. These hot plate are compact, Trouble free mechanical relay less control, Fine temperature control to the resolution of  $0.1^{\circ}\text{C}$  ( $0.010\text{C}$  optional) Less electricity consumption, Temperature control between 10% to 100% with/without stirring option, Electronic display for temperature of fluid and set point, Temperature-time profile control facility at option. Cermic/teflon/glass coated hygienic/ corrosion resistant hot plate surface

**Electrical and mechanical specifications of Hot-plates****200.0 < Pr < 50000 watts**

Model:	MHTHP-03040	MHTHP-05040	MHTHP-08050	MHTHP-10050	MHTHP-20050	MHTHP-50050
Capacity/size (liter/ inches)	4x4(dxh)	6x4(dxh)	8x4(dxh)	10x04(dxh)	12x06(dxh)	20x08(dxh)
Operating volt/power (volt/watts)	220/100	220/200	220/500	220/750	220/1000	220/2000
Temperature control range $^{\circ}\text{C}$	50 to + 400	50 to + 400	50 to +500	50 to + 500	50 to + 500	50 to + 500
Resolution of temperature control $^{\circ}\text{C}$	0.1/0.01	0.1/0.01	0.1/0.01	0.1/0.01	0.1/0.01	0.1/0.01
Accuracy of temperature control $^{\circ}\text{C}$	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
Response time-mili sec	10	12	16	23	36	50
% Overshoot	Critically damp	Critically damp	Critically damp	Critically damp	Critically damp	Critically damp
Settling time-mili second	60	70	80	90	100	110
Control scheme	Feedforward/cascade	Feedforward/cascade	Feedforward/cascade	Feedforward/cascade	Feedforward/cascade	Feedforward/cascade
Temperature sensor type	Thermopile	thermopile	thermopile	thermopile	thermopile	Thermopile

**Technical data of Water bath controllers.**

Operating power supply: 220 volts/50Hz

Heat output: 50 Watts to 10-kilo watts

Temperature control range: up to  $400^{\circ}\text{C}$ .Resolution in temperature control:  $0.1^{\circ}\text{C}$  ( $0.01^{\circ}\text{C}$  optional)

Accuracy in temperature control: 99.9% of set point

Display accuracy: as above

Permissible humidity: 90%

Permissible ambient temperature:  $60^{\circ}\text{C}$ 

Protection: overload/short circuit.

Power efficiency: 95%

Cooling: air-cooled

Control: feed back/feed forward temperature control /with temperature profile control as preset / with 0-12 volts D.C. signal output. Automatic temperature control according to preset profile of temperature w.r.t. time with high degree of repeatability and accuracy. Digital display for temperature, stirring speed (optional). Facility to interface with PC.

Additional: RS-232 control

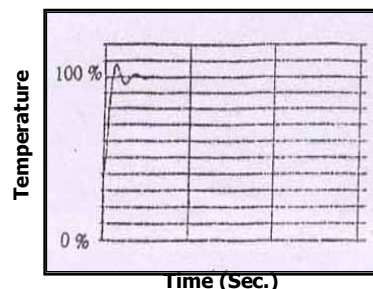
Dimension of controller :4x5x6 for power rating upto 200 watts

(in inches)

4x6x4 for power rating upto 1000 watts

6x6x4 for power rating upto 5000 watts

Hot plate material :Teflon/ceramics/glass/epoxy coated

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