HOT AIR OVEN / HOT CHAMBER

HAO - XXXX/XXX/CX/HX/XXX

Technical specification

Model Nomenclatures:

For Example HAO/250/250/CX/H3/N-CONT

HAO	250	250	CX	H3	N-CONT	
HOT AIR OVEN	Inner chamber Litter capacity	FROM AMBIENT +10 DEG C TO MAX Temperature Range	C X - cooling rate changes/mint	H X - Heating rate changes/mint	N-CONT - Non profile controller	N-CONT-H - Non profile controller With HMI
					SP-CONT - Single Profile controller up to 16 segment (ppi)	SP-CONT - H Single Profile controller up to 16 segment (ppi) With HMI
					EP-CONT - Single Profile controller up to 16 segment (Eurotherm)	EP-CONT - H Single Profile controller up to 16 segment (Eurotherm) With HMI
					P-CONT - Profile controller Make Eurotherm, Model NANODAC	P-CONT -H Profile controller Make Eurotherm, Model NANODAC With HMI

According to IEC 60068-3-5 and IEC 60068-3-6

a) ___ °C /min (empty chamber) as per IEC 60068-3-5. Averaged between chamber Minimum Range temp ___ °C to chamber Maximum range temp _____°C with sensor in discharge of air of blower

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Paraniputhur Post, Iyyappanthangal, Chennai - 600 122, Tamilnadu, India.

Laboratory Oven

HOT AIR OVEN - UNIVERSAL DIGITAL

- Temperature range : 50°C to 250°C
- Temperature Accuracy : ± 1°C
- Temperature Controller : Digital Microprocessor controller with LED Display
- Heating : Side Heated
- Air Circulation : Blower
- Inner chamber : SS 304
- Cabinet : GI powder coated
- Outer Door Gasket : Silicone
- Trays : Perforated SS Tray
- Supply : 220-230 volts AC

Model No.	Internal Dim. W x D x H cm	Capacity Ltrs	No of Trays	Watts
HO-01UD	30 x 30 x 30	27	1	1000
HO-02UD	35 x 35 x 35	42	2	1200
HO-03UD	45 x 45 x 45	91	2	1500
HO-04UD	45 x 45 x 60	121	3	1800
HO-05UD	60 x 60 x 60	216	3	2250
HO-06UD	60 x 60 x 90	324	3	2250

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CIN Number: U24304TN2018PTC123559

Industrial Hot air Oven

Work Space	Inner size 50 Litter	Inner size 100 Litter	Inner size 180 Litter	Inner size 250 Litter	Inner size 340 Litter
Internal dimensions approx. (mm)	Inner size 50 Litter - 400mm W x 300mm D x 500mm H	Inner size 100 Litter - 500mm W x 400mm D x 600mm H	Inner size 180 Litter - 580 mm W x 450mm D x 750mm H	Inner size 250 Litters - 600mm W x 600mm D x 750mm H	Inner size 340 Litter - 580mm W x 765mm D x 750mm H
Temperature Range different model	From Ambient +10°C to 250°C / ± 1°C				
Deviation in temperature with respect to space	± 1 ° C to 2° C				
Display resolution	0.1 ° C for temperature				
Temperature accuracy	± 1 ° C				
Temperature changing rate Cooling [4+5]	Based on customer request two type cooling using one for fresh air inlet another for LN2 cooling				
Temperature changing rate Heating [4+5]	Based on customer request				
Controller	: N-CONT = Non profile controller PPI make single set point only				
	: SP-CONT = Single Profile controller Make PPI or fuji (16 segment only)				
	: EP-CONT = Single Profile controller Make Watlow or Eurotherm (16 segment only)				
	: P-CONT = Profile controller make Eurotherm (20 profiles) Make Eurotherm, Model NANODAC, Control accuracy 0.1Deg c • 4 channel Recording option, • Digital temperature controller with programming • Internal memory capacity 45MB. We can Download Through USB or PC both is available Min sampling Time interval 0.25 ms # Nanodac 1 channel for Control and other 3 channel for Recorder purpose				
	: N-CONT-H or SP-CONT-H or EP-CONT-H or P-CONT-H = controller with 7" Weintek 7" HMI (In HMI We can Download Through USB or PC both is available Min sampling Time interval 0.25 ms store -csv file)				
Optional Fan Motor Drive	Based on customer request				
Construction Features	: Interior SS 304 Sheet thickness – 1.2/ 1.5 mm Stainless Steel arc welded				
Exterior	: Exterior Sheet thickness 1.5 mm CRCA sheet with powder coated				
Tray	: 1 Number - Adjustable horizontal SS grill racks				
Side Cable Access port	75 mm Diameter - 1 no				
Chamber inspection lamp will be provided	20 w			60 w	
Insulation	: 125 mm thick Glass wool insulation				
Door	Full front opening door, double walled insulated and interior stainless steel				
	Optional -View glass window				
	100 mm x 200 mm Front Inspection glass window in door		300 mm x 400 mm Front Inspection glass window in door		
Gasket	: Silicon Double gasket, one on the chamber and one on the door.				
Hinges & Latches	: Heavy duty door hinges with toggle type locking arrangement.				
Mounting	Floor Mounting Type		Wheel mounting type.		
Power Supply	230 VAC +/-5% + N+G, single Phase, 50 Hz, A.C.	415 VAC +/-5% + N+G, Three Phase, 50 Hz, A.C.			

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Work Space	Inner size 380 Litter	Inner size 550 Litter	Inner size 600 Litter	Inner size 800 Litter	Inner size 1000 Litter
Internal dimensions approx. (mm)	Inner size 380 Litter - 600 mm W x 800 mm D x 800 mm H	Inner size 550 Litter - 850mm W x 730mm D x 900mm H	Inner size 600 Litter - 800mm W x 800mm D x 950mm H	Inner size 800 Litter - 1100mm W x 800mm D x 950 mm H	Inner size 1000 Litter - 1000mm W x 1000mm D x 1000mm H
Temperature Range different model	From Ambient +10°C to 250°C / ± 1°C				
Deviation in temperature with respect to space	± 1 ° C to 2° C				
Display resolution	0.1 ° C for temperature				
Temperature accuracy	± 1 ° C				
Temperature changing rate Cooling [4+5]	Based on customer request two type cooling using one for fresh air inlet another for LN2 cooling				
Temperature changing rate Heating [4+5]	Based on customer request				
Controller	: N-CONT = Non profile controller PPI make single set point only				
	: SP-CONT = Single Profile controller Make PPI or fuji (16 segment only)				
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Exterior	: Exterior Sheet thickness 1.5 mm CRCA sheet with powder coated				
Tray	: 1 Number - Adjustable horizontal SS grill racks				
Side Cable Access port	75 mm Diameter - 1 no				
Chamber inspection lamp will be provided	60 w		60 w x 2		
Insulation	: 125 mm thick Glass wool insulation				
Door	: Full front opening door, double walled insulated and interior stainless steel				
	Optional -View glass window				
	• 300 mm x 400 mm Front Inspection glass window in door				
Gasket	: Silicon Double gasket, one on the chamber and one on the door.				
Hinges & Latches	: Heavy duty door hinges with toggle type locking arrangement.				
Mounting	Wheel mounting type.				
Power Supply	415 VAC +/-5% + N+G, Three Phase, 50 Hz, A.C.				

Note: XXX*+*

4	According to IEC 60068-3-5 and IEC 60068-3-6 a) ___ °C /min (empty chamber) as per IEC 60068-3-5. Averaged between chamber Minimum Range temp ___ °C to chamber Maximum range temp _____°C with sensor in discharge of air of blower
5	The performance data refer to +22°C ambient temperature, 400V nominal voltage, without specimen
6	Ramp rate available Heating and cooling for 0.5 deg c / min to 60 deg c /min

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DESCRIPTION

• **Chamber Construction:** The chamber is with double walled insulated construction with argon arc welded thickness of the sheet 1.2/1-5 mm. SS 304 interior / outer sheet thickness 1.5 mm. with Powder coated. The chamber is of vertical trolley mounting configuration. Full front opening double walled insulated door is provided with silicon rubber gasket with hinges and toggle type locking arrangement.

• **Air Circulation:** Fan/blower will be provided with continuous duty rated motor for air circulation. Conditioning space will be provided in the main chamber, which is baffled, and the heaters and cooling coil etc. will be located in the conditioning space. Conditioned air will be admitted in the main chamber to maintain uniform temperature in the chamber workspace and Air circulation Internal Fan with synchronized door lock system.

• **Heating system:** Low surface loading sealed tube heaters will be provided to add heat in the chamber to maintain uniform temperature. The heat input will be controlled by solid-state relays through microprocessor programmer. The heaters will be located in the conditioning space and there will not be any direct radiation of heat on the item under test.

• **Optional Instrumentation:**

a) For Hot test chamber Single loop control system – Temperature controller will be provided with PT 100 as temperature sensor for indication and control of Temperature direct display.

b) **Optional** PC software – Unlimited Profile through PC software

Option 1 - Non profile controller

Advanced Temperature

Highlights

- Universal Inputs (RTD/mA/V for Temperature)
- Independent Self Tune PID or On-Off Control Loops for Temperature
- Programmable Alarms & Retransmission Outputs for Temperature

Features

- Relay or SSR Drive Outputs for Heating,
- Relay Output for Alarm
- Standby Mode for Use as Indicator with Alarms
- Optional RS485 MODBUS/RTU Serial Communication Port
- Universal Supply Voltage : 85~264 VAC, 50/60 Hz
- DIN Standard Dimensions (mm) : 96(H) X 96(W) X 100(D)

Option 2 - Profile controller

Single profile controller (SP-CONT)

Universal Input (Thermocouples, RTD Pt100, DC Linear mA/mV/V)
Self Tune PID with overshoot Inhibit Feature & On-Off Control
Relay / SSR or DC Linear Voltage / Current Control Output
4 / 8 / 12 / 16 Segment Ramp/Soak Profile
Optional Alarm / Retransmission Outputs
Programmable Heat / Cool Control Mode
Optional RS485 MODBUS Serial Communication Port
DIN Standard Dimensions (mm) : 48(H) X 48(W) X 110(D), 96(H) X 96(W) X 65(D).

EP-CONT

Input Type	*CT, mA, mV, RTD, TC*
PV Accuracy	*<0.25%*
IP Rating	*IP65, NEMA 12 / NEMA 4X (3216 Only)*
Display Type	*Main: 4 digits Lower: 5 character starburst (3216/08/04) 9 character starburst (32h8)*
Control Types	*On/Off, PID, VP*
Alarm Types	*Dev, Event, Heater fail, Hi, Lo, Sensor Break*
Supply Voltage	*24V dc/ac, 85-264V ac*
SP Programmer	*4 Ramp + 4 Dwell*

P-CONT

The SERIES F4 ¼ DIN industrial ramping temperature controller meets the requirements of the most demanding ramp soak controller processing applications. Easy to set up and operate, the ramp soak controller's programming features and proven performance capabilities are ideally suited for environmental chamber or furnace and oven applications. Single and dual channel versions are available.

Competitively-priced, the SERIES F4 ramping temperature controller features a four line, high-definition LCD interface display for quick and easy profile programming and controller configuration. Its 16-bit microprocessor ensures accuracy and delivers performance advantages you can count on from a Watlow controller

Features

- Guided 256 step, 40 profile ramp and soak programmable memory supports a wide range of processing applications
- High-definition, four line LCD controller interface display simplifies setup and operation
- Menu customization for enhanced process monitoring
- High-performance, 16-bit microprocessor provides precise process control
- Application versatility with universal inputs

(Eurotherm temperature controller we have recommending the new model)

nanodac™ Recorder / Controller

The ultimate in graphical recording combined with PID control and set point programs

The nanodac™ recorder/controller offers the ultimate in graphical recording combined with PID control for a box of its size. The compact ¼ DIN panel mount unit offers four high accuracy universal inputs for data recording and PID control. This secure data recording device with accurate control is enhanced by a full colour, ¼ VGA display to bring a crystal clear operator interface to even the smallest of machines.

- Control accuracy 0.1Deg c
- 4 channel Recording option,
- Digital temperature controller with programming
- Internal memory capacity 45MB.
- We can download through USB or PC both is available
- Min sampling Time interval 0.25 ms
- # Nanodac 1 channel for Control and other 3 channel for Recorder purpose

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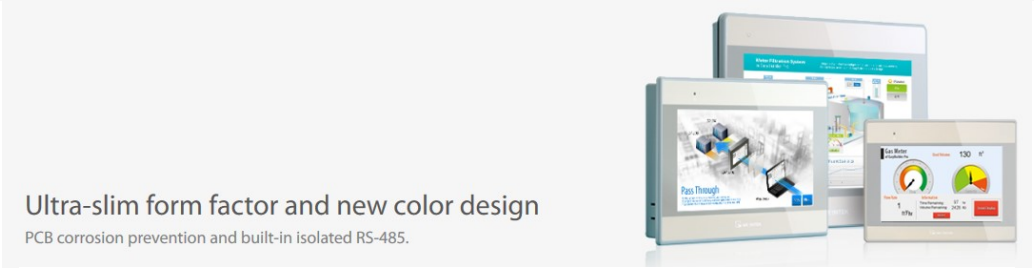
Optional 3 Touch Screen

The chamber shall be operated using a 7-inch TFT active matrix resistive analog touch screen. The screen shall have a 256 color, with a screen resolution of 320 x 240 pixel. The screen is mounted on the operating panel of the chamber.



Programs

The chamber shall have a program mode in the controller which shall have 20 independent programs and through PC software unlimited programs. These programs can be stored with a name and number. Each of these programs shall have 50 segments where different modes such as salt spray, dwell, dry cycle, high humidity cycle, and air inlet can be set

Diagnostics

An event viewer shall display a log of all errors and actions with a date and time stamp. These events are also logged in a csv file which can be accessed using the USB or Ethernet ports available in the controller. The PLC's digital inputs and outputs statuses shall be indicated to analyses the working of all the electrical components in the chamber. A csv file of every test program shall be created and stored in the internal memory of the controller. The values that are logged, temperature, humidity, will be recorded.

Delay Start

A delay start of program shall be provided based on time, where the start of the program is scheduled. The delay schedule can be set for a maximum of 24h

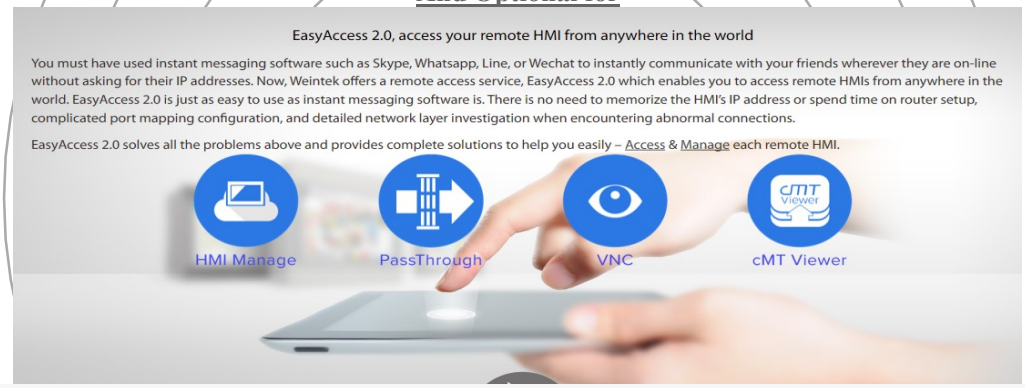
Trend Graph

A real time trend shall be provided to view the test program in a graphical view. The parameters that shall be provided are include test space temperature process value, test space temperature set value, saturator temperature process value, saturator temperature set value humidity process value, humidity set value .

Remote viewer

A built-in web server shall be provided which allows remote view or control from any LAN, WAN or internet connected PC, tablet or smart phone. Any standard web browser shall allow access to the controller screens using the pre-configured IP address. The screens on the web browser and the touch screen shall be duplicated to offer the same user interface / experience on PC or touchscreen.

And Optional for



Memory

Flash Memory 128MB and Ram memory 128MB capacity. The memory shall store test program data and diagnostic data in csv format. This memory shall be accessed using the USB and Ethernet ports.

• **Control Panel & Wiring:** Separate control panel attached to the main chamber will be provided which will house the programmer, on/off switches, fuses, contactors, indicating lamps etc. Channel type wiring will be done with suitable current rated copper wires with marking ferrules, crimped dowel terminals, elmex connectors etc.

• **Safety protection:**

1. Back up fuse protection for mains and individual circuit.
2. Over temperature safety cut off thermostat with audiovisual alarm.
3. Overload protector for motor.
4. MCB for heaters.
5. Water level controller for level in boiler.