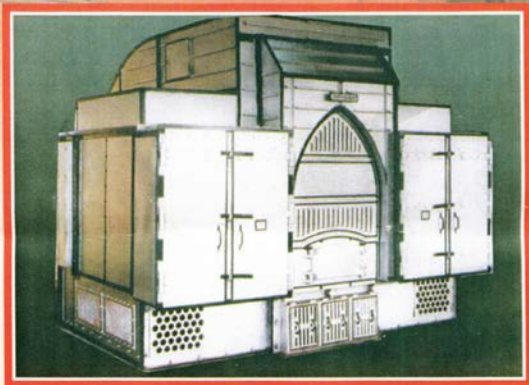




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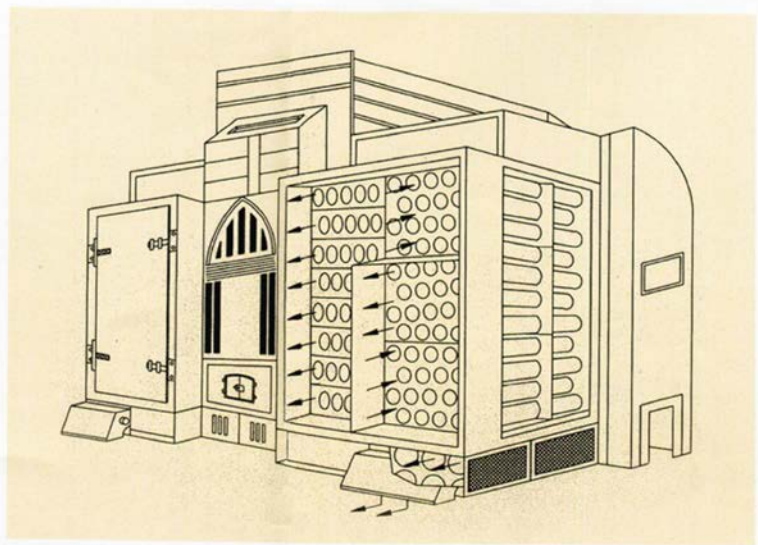


# Aura

*Cellular Multitubular Heater*

# Aura

Efficient Air Heater



# Aura

## Efficient Air Heater

*Since its introduction, the Aura has found wide acceptance in estate large and small not only in India, but also in other Tea producing countries like Bangladesh, Kenya, Tanzania, Indonesia, Sri Lanka, Uganda, Malawi, Malaysia and Turkey*

## Technical Features

### Tube Banks

Aura heaters are fitted with tube banks instead of individual tubes. Each tube banks consist of 2 smaller banks flanged together. Each of these small tube banks consists of tubes. The tube banks are grooved at each joint to fit asbestos rope packing for better sealing. The number of tube banks varies according to the size of the heater. All tubes are made of C.I. and only in 5 pass heater the tube banks are made of M.S for better heat transfer.

### Foundation

The heater can be erected on a firm and rigid concrete base of general proportions. The concrete raft 9" thick on solid earth is sufficient and no excavation is required. So the heater can be mounted on the concrete raft without any time loss.

### Draft System

Aura heaters are designed to handle both Induced and Forced air draughts. For maximum efficiency the fans are specially designed with aerofoil impeller blades which deliver the required quantum of hot air with low power consumption. Intel dampers are provided in the fan for better control.

### Mechanical stoking (optional)

Aura Heaters can be conveniently fitted with mechanical strokes for uniform feed of coal. This helps to maintain the temperature as well as reduce coal consumption.

T & I the most efficient 5 pass Aura heater to minimize the TEA drying cost.

Aura is a cellular multitubular heater specially designed for the Tea Industry. The salient features are the double vertical rows of tube on either side of the grate which aids in either 3 pass or 5 pass of the flue gas. These heaters can be fired with either coal, leco, firewood, gas or oil.

## Aura Principle

In the Aura hot flue gases drawn by an induced draught created over the grate by the ID Fan & Chimney pass 2 vertical rows of Tube -bundles on either side of the grate and overcast surfaces, Ambient fresh air drawn from the sides back and top by the dryer fan, picks up heat from heated surfaces and enters the drying chamber. The principle of both 3 pass and 5 pass is the same except that in 5 pass is the same except that in 5 pass hot air is made to pass five times in the tube banks as against 3 times in the 3 pass. So heat transfer area is increased by more than 1.5 times & this improves the heater efficiency.



### **Easy Installation**

Entire Aura heater arch bars Banks, front plate, back palate, smoke box, side plates etc. are made in parts so that handling is easy. All these parts designed in such a way that they can be done within a short time.

### **Heat Transfer**

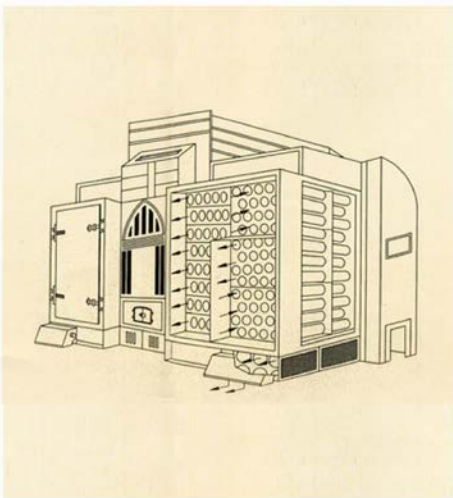
Aura heaters are designed with higher heat transfer area and flue gases pass 5 times or 3 times before escaping into the atmosphere. This improves the efficiency of the heater. Moreover, since the flue gasses pass through the tubes instead of over them, the tubes can be cleaned and maintained for better heat transfer.

### **Materials**

All castings are of superior quality & they are properly cleaned & fettled before assembly. Special Graded heat resistant castings are used where heater has to cope high temperatures. In 5 pass heaters the outer tube banks are made of special M.S tubes for better heat transfer.

### **Heat Insulation**

The Entire inner surface of front plate & retaining bolts are insulated with special heat compound. The angle cleats which are welded to fan suction ducts are insulated with special lagging compound for better heat insulation.



## **AURA HIGHLIGHTS**

### **Multiple Models**

Aura heater comes in 4 different sizes with both 3 pass & 5 pass. So total 8 different models are available. The biggest model Aura Major produces usable heat of 10.5 Lac Kcal/hr.

### **Better Heat Transfer**

Aura heaters are specially designed for better heat transfer. Aura 5 pass heater's efficiency varies from 55-65% depending on model.

### **Low power & coal consumption**

Due to better heat transfer the coal consumption per kg of made tea is less than 0.6kg & power is also less by 25% in the 5-pass heaters, under normal conditions of use.

### **Better retention of heat**

Aura heaters are constructed with better & high quality heat resistant materials, so heat loss is very minimal.

### **Long life of castings**

All parts exposed to direct heat are made of special superior castings, so they last much longer. All castings except tube banks and arch bars are guaranteed for 5 years.

### **No Maintenance**

Since there are no moving parts, maintenance is very minimal expect cleaning of tube banks.

### **Easy & Quick Installation**

No excavations & so foundation bolts are required, since there is no moving part, the machine is supplied in dismantled condition for ease in installation and handling.

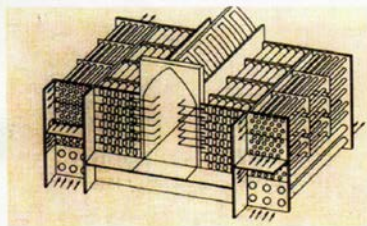
### **Versatile**

Aura heaters can be coupled with any type of dryer.

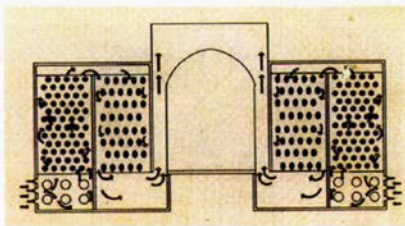


# Aura Specifications

DESCRIPTION	MARK - II 5 PASS	SUPER 5 PASS	SPECIAL 5 PASS	MAJOR 5 PASS	JUMBO 5 PASS	
<b>No. of Arch Bars</b> (Back + Centre + Front)	2 + 16 + 2	2 + 16 + 2	2 + 16 + 2	2 + 22 + 2	2 + 26 + 2	
<b>Grate Area</b>	ft <sup>2</sup>	11.2	12.8	16.0	23.3	
	m <sup>2</sup>	1.04	1.19	1.49	2.17	
<b>No. Of Tube Bundles</b>		12 + 6 + 2	16 + 6 + 2	20 + 6 + 2	20 + 6 + 2	
	C.I.	12 (6 on each side)	16 (8 on each side)	20 (10 on each side)	20 (10 on each side)	20 (10 on each side)
	M.S.	6 (3 on each side)	6 (3 on each side)	6 (3 on each side)	6 (3 on each side)	6 (3 on each side)
<b>Tube Length</b>	M.S.	2 (1 on each side)	2 (1 on each side)	2 (1 on each side)	2 (1 on each side)	2 (1 on each side)
	mm	1,840	1,840	1,840	1,840	2,311
inch	72	72	72	72	91	
<b>Heat Generation</b> with Stoker	k.Cal. / hr.	10,01,963	11,44,413	14,31,238	17,25,763	20,83,813
<b>Coal Burning Capacity</b>	k.Cal. / hr.	182	208	260	310	375
<b>Coal consumption</b> using stoker with outside dryer	k.Cal. / hr.	100-120	120-150	140-170	160-190	190-220
<b>Air requirement</b> for burning the coal	CFM	3,500 - 6,370	4,200 - 7,280	4,900 - 9,100	5,600 - 10,980	7,000 - 13,250
<b>Hot air output</b>	kg. / hr.	32,531 at 95°C	28,374 at 120°C	37,353 at 120°C	42,037 at 120°C	50,758 at 120°C
		28,465 at 105°C	23,439 at 140°C	30,857 at 140°C	34,726 at 140°C	41,931 at 140°C
<b>Hot air output</b>	CFM	17,698 at 105°C	17,641 at 120°C	24,465 at 120°C	27,533 at 120°C	33,245 at 120°C
		15,700 at 120°C	16,143 at 140°C	21,252 at 140°C	23,917 at 140°C	28,879 at 140°C
<b>Overall Size</b> (L x W x H) in mm		5220x4140x2722	5390x4140x3027	5640x4250x3450	6040x4251x3450	6446x5440x3450
<b>Overall Size</b> Approx. in kgs		16,000	19,000	23,000	25,000	30,000



FLUE GAS FLOW DIAGRAM



PROCESS AIR FLOW DIAGRAM