



## HIGH TEMPERATURE HIGH PRESSURE YARN DYEING MACHINE



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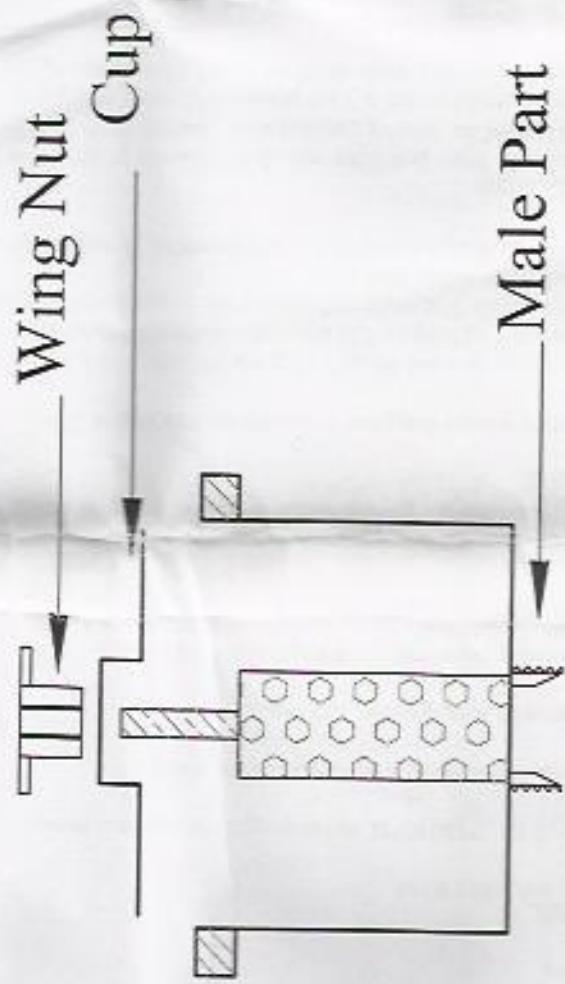
## **SPECIFICATION FOR 1KG YARNS DYEING MACHINE:**

1. Machine capacity : 1kg yarn / fiber dyeing.
2. Operation : semi-automatic
3. Specification of fiber carrier : vertical type with perforation as per drawing attached, material of construction S.S 316.
4. Liquor ratio : about 1:12 for air pad and 1:15 for fully flooded operation. (**This MLR is given for standard size packages. The MLR is directly dependent on the package size, package density**)
5. Heating system : steam heating
6. Maximum working temperature :  $145^0\text{C}$
7. Working pressure :  $4 \text{ kg/cm}^2$ .
8. Addition tank : 12 liter.
9. Heating gradient : up to  $4^0\text{C}/\text{min}$ .
10. Cooling gradient : up to  $3^0\text{C}/\text{min}$ .
11. Maximum bobbin diameter : 180mm
12. Total power : 3kw.
13. Size : 1300 x 800 x 1250mm.

## **Utility requirements:**

1. Compressed air :  $7\text{kg/cm}^2$  dry and clean air.
2. Steam line :  $7\text{kg/cm}^2$  saturated steam.
3. Water line : as per process requirement
4. Drain line : for drain out color, chemicals.

## 1 kg Capacity Fiber Carrier



This machine is suitable for dyeing synthetic and natural fiber in different forms like loose stock, top or yarn wound on collapsible dye spring using suitable carriers.

**The machine will have the following main components:**

1. Main dyeing vessel,
2. Addition tank,
3. Necessary pipe line for the machine,
4. Heating coil / jacket in the main vessel,
5. Direct heating in the addition tank
6. Stainless steel main pump
7. High pressure injection pump (optional)
8. Fiber carrier (optional)
9. Control panel with dyeing programmer and safety controller.

**Function available with DP-02 is:**

1. Heating rate,
2. Heating
3. Cooling
4. Pressurizing can be set as (for 10kg and above)
5. De-pressurizing (for 10kg and above)
6. Inside-outside and out side – inside working time.
7. Control of stop function in-between in – out and out in.
8. Operator call as and when required.
9. Alarm after complete the process.

**Technical details:**

Main pump : 2hp, 1440 rpm.

Injector pump : 2hp, 2800rpm developing pressure up to 5kg/cm<sup>2</sup>. (optional)

Motor will be Crompton make.

**Loading details:**

The yarn carrier will be designed as the size of the package and will accommodate 1 kg of yarn. It will be provided with gravity lock nuts.

Package size: The carriage is designed for a standard package size.

Diameter of package	: 180mm.
Tube ID	: 57mm
Tube height	: 170mm
Nett weight of package	: 1kg.
No. of yarn carrier poles	: 1 no.
No. of package in each poles	: 1 no.

### **Main dyeing vessel:**

This vessel is made out of S.S 316/316L with a maximum working pressure of 4kg/cm<sup>2</sup> and working temperature of 145<sup>0</sup>c. The thickness of the shell is 4.5mm and the dished end is 5mm. The vessel is pressure tested up to 12kg/cm<sup>2</sup>. The main lid of the vessel is easily operated and is a cooker type locking arrangement. The lid is interlocked with other safety devices.

### **Main pump:**

Main pump is an axial flow pump and it rotates in both directions for change the direction of the liquor flow.

### **Heating and cooling:**

Indirect heating coil fitted inside the vessel, is made out of S.S 316 / 316L seamless pipe to prevent leakage and long life. The same pipe is also used for cooling of the dye liquor.

### **Pipe lines:**

Complete pipeline with all necessary fittings, valves and hardware is made from stainless steel. Flanges for steam inlet and water inlet will be provided.

### **Addition tank:**

This is a S.S 316/ 316L tank with injection pump connected to the main vessel for addition of color and chemicals.

### **Pneumatic control valves:**

Following pneumatic control valves along with solenoid valves will be provided.

1. Heating
2. Cooling water inlet
3. Cooling water outlet
4. Pressurizing (for 10kg and above)
5. De-pressurizing ( for 10kg and above)

### **Control panels:**

With the automation of DP-02 the following function are controlled.

1. Heating rate,
2. Heating
3. Cooling
4. Pressurizing can be set as ( for 10kg and above)
5. De-pressurizing ( for 10kg and above)
6. Inside-Outside and out side – inside working time.
7. Control of stop function in-between in – out and out in.
8. Operator call as and when required.
9. Alarm after complete the process.

## CONTROL PANEL



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