



*Zenith and You - The Perfect Blend*

# ZEST

Vibro Fluid Bed Dryer



ISO 9001:2000

# ZEST

## Vibro Fluid Bed Dryer

### INTRODUCING

**ZENITH** presents latest & updated version of VFBD, called "**ZEST**" - a value oriented dryer. Drying is the most sensitive stage of Tea making & its efficiency, accuracy & thoroughness are all crucial to the quality of end product. "**ZEST**" VFBD is the combination of science and technology, a dryer which meets all the parameters of making good Tea.

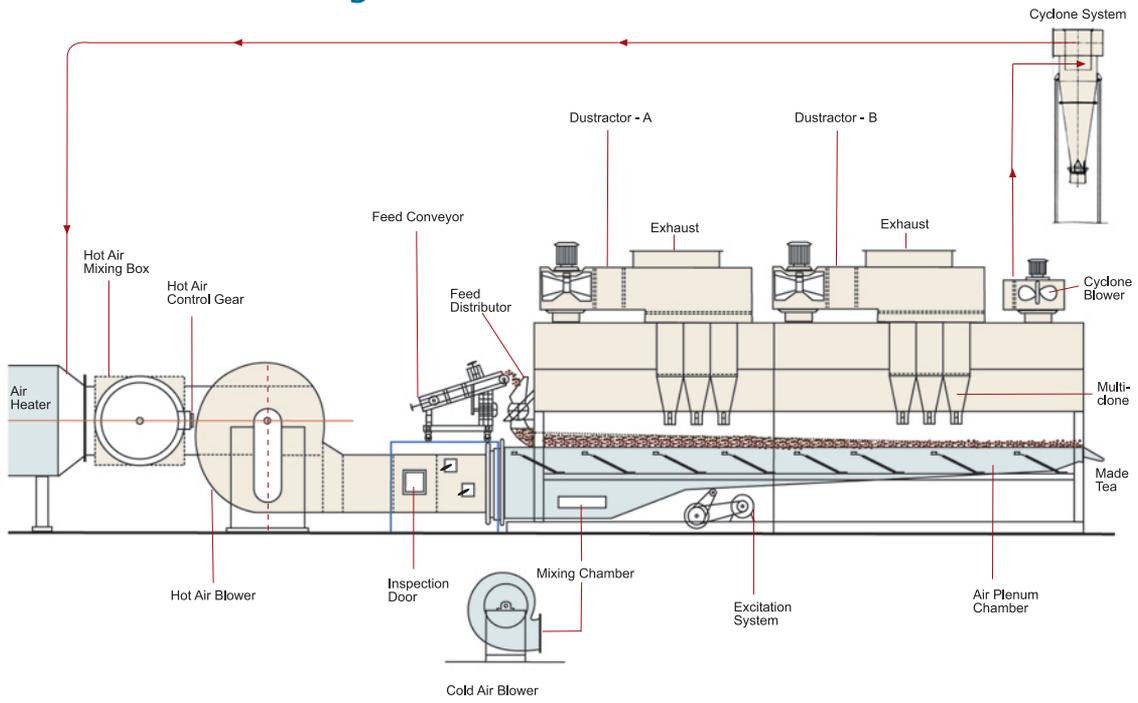
**"ZEST"VFBD** is highly efficient using latest UK technology fans and specially designed plenum with controlled velocity of air at all the point, improves high thermal efficiency and saves in fuel cost. The grid plate configuration is specially designed to produce denser, blacker, bloomier Teas with excellent liquoring properties. The unique flow control damper system enables to fire the Teas at a lower temperature and movement of Tea is fully controllable.

### Process

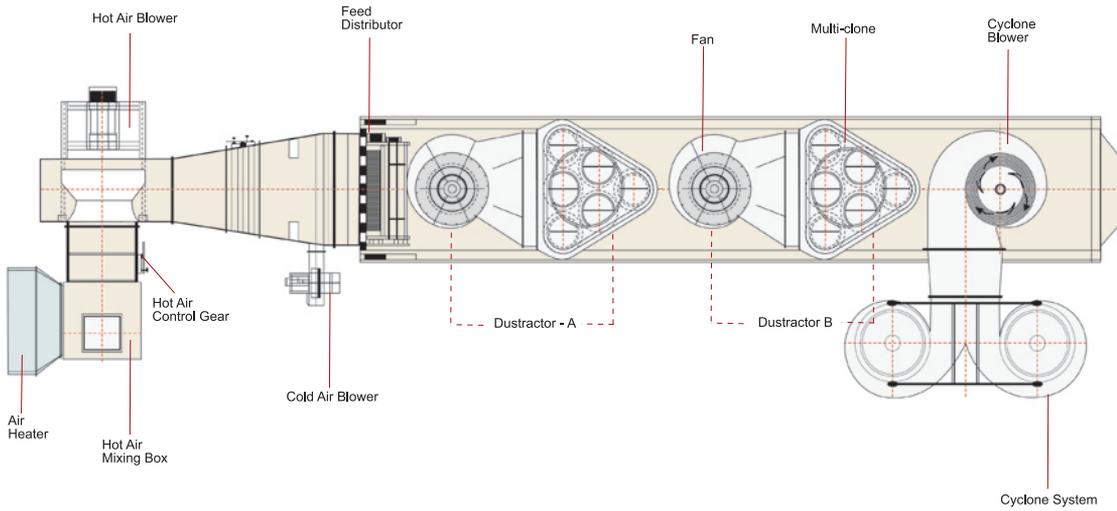
The fermented tea is spread over the perforated bed through a mechanical feeder & spreader. The tea is fluidized by hot air pushed into the drying chamber through an aerodynamically designed plenum chamber & the mechanical vibrator which moves the teas forward. The tea is dried uniformly & the moist air is discharged in the atmosphere. The exhaust air from the last zone is recirculated into the air heater for improving fuel efficiency.

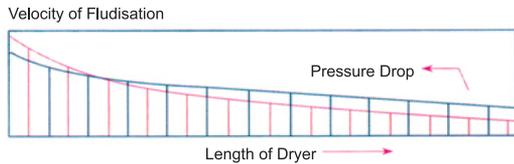


# Schematic Design



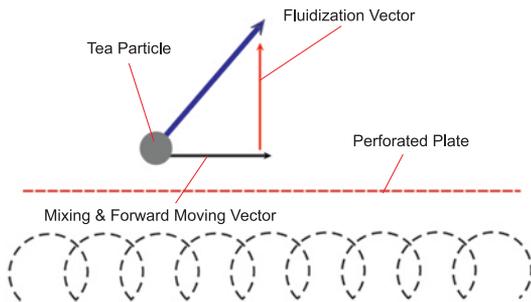
# Top View





### Grid Plate

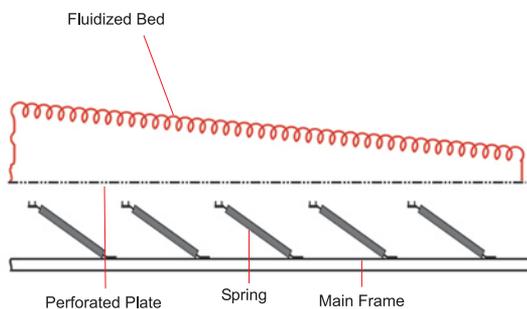
This is made of Heavy duty AISI - 304 grade stainless steel. The design, profiles configuration & nos. of holes per sq. mtr. are so engineered to ensure better & even fluidization & moisture evaporation.



CIRCULATION MIXING

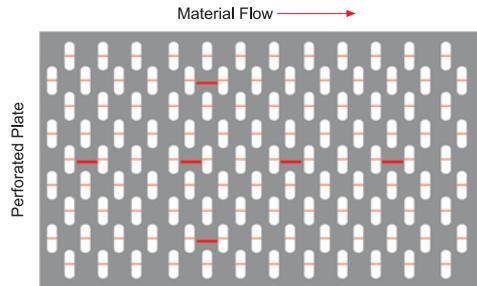
### Dust Extraction System

The cyclone system with automatic refiring of wet & fly off, design is uniquely designed to dry teas uniformly. Only hot air is blown out. No fly off around the dryer. The fans cyclone & ducts are made of S.S. Hence, no rusting. The cyclone fans are specially developed on UK Technology for higher efficiency.



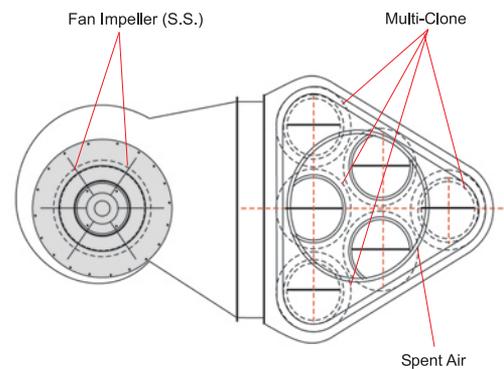
### Plenum Chamber

The profile of Plenum Chamber is designed aerodynamically to achieve desired fluidization velocity & pressure for better drying of Tea.



### Excitation

Through articulated design & vibration system, the tea fluidizes angularly and then circulates and this sequence follows to attain perfect drying of tea particles uniformly.



### Vibration System

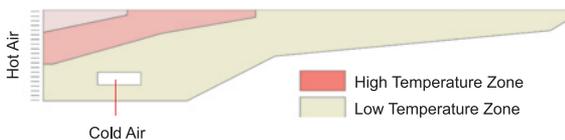
Through a heavy duty double crank, oscillating vibration is caused to plenum, which is supported by special spring fitted, to cause excitation to the plenum chamber for better movement & fluidization of Tea.

## Additional Special Features of "ZEST"

The additional special features added to "ZEST" outdates all VFBD in use and makes "ZEST" a class apart and leaves no choice to the user to think other than "ZEST"

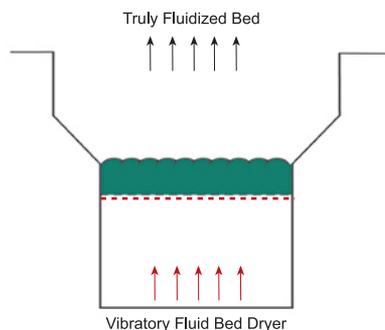
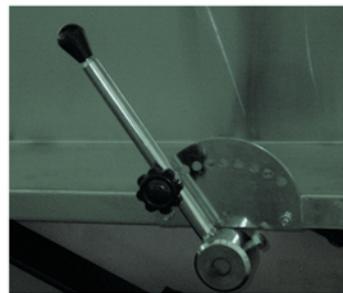
### Three Stage Temperature Drying Zones

Main Advantages of **three stage temperature drying** are :-Initial drying at high temperature zone ensures immediate arresting of fermentation process alongwith faster removal of moisture. This is followed by drying at low temperature zone for balanced removal of moisture. This whole process ensures proper enzymic and chemical reactions in the tea and optimizes prevention of losses of important organic compounds.



### Flow Control Dampers

Unique design of air flow control dampers system incorporated help in controlling the thrush - put time of Tea in dryer. Thus residence time of tea in the plenum chamber can be controlled as per the condition of Tea being dried for perfect drying.



### Plug Flow type Fluidization

This system ensures thorough mixing of solids with even & uniform drying and eliminates case hardening.

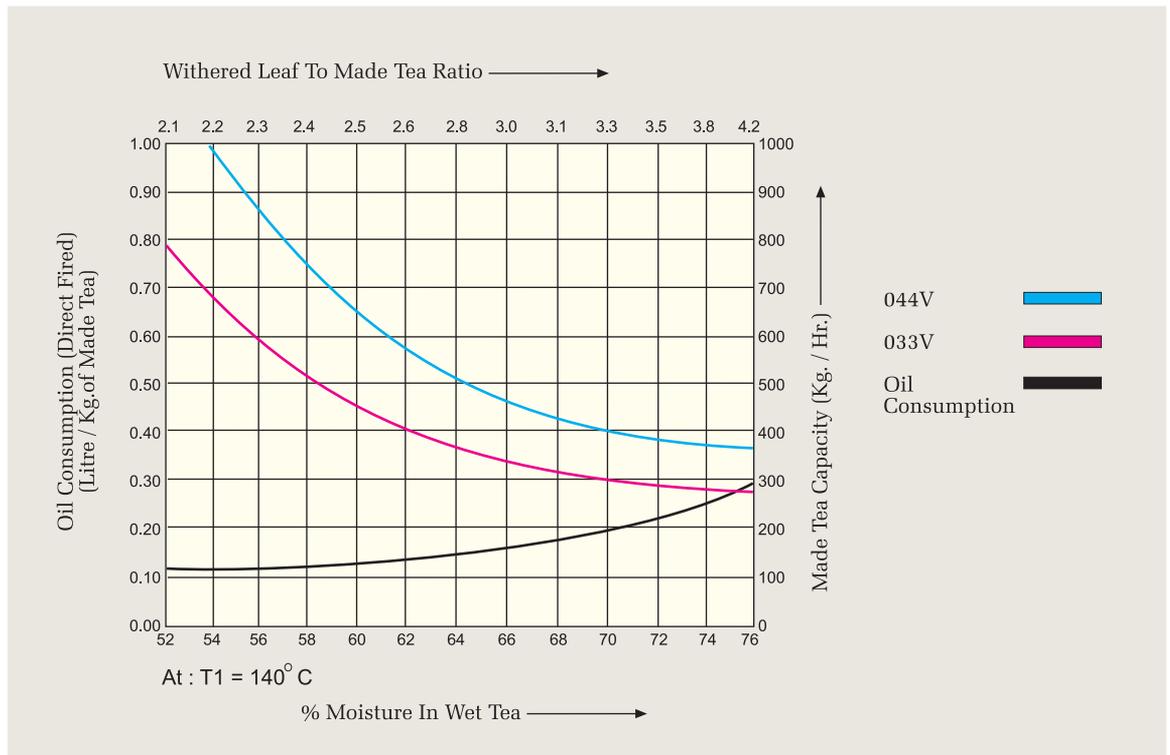
### Double Crank

We have incorporated the double crank system for effective trouble free runner with long life of crank bearings. This has added to the efficiency of the system.

### Critical study has been done in respect of the major points:-

- Temperature & Moisture Loss - relation between two & relative pattern.
- The residence time distribution in different stages.
- Handling of soft withered leaves to produce better liquors.
- Constant rate period of drying - Specific drying rate.
- Higher & smooth throughput without interruption.
- Fuel efficiency & conservation.

## Capacity & Consumption



## Technical Details

Module	033V	044V
Capacity made Tea (Kgs/Hr.) at T1 135 +/-5C <i>(Moisture content range of leaf : 76% - 62%)</i>	275 - 400*	375 - 550*
Water evaporation capacity (Kg/Hr.)	750	1100
Size of Drying Chamber L x W (M.M.)	8500 x 1130	8500 x 1700
Heat Load Requirement (KCAL/HR.) at 140 C	6,50,000	9,80,000
Installed Power : HP (KW)	48.5 (36.37)	67.50 (50.62)
Drying System : HP (KW)	33.00 (24.75)	42.50 (31.87)
Dust Collection : HP (KW)	15.50 (11.625)	25.00 (18.75)
Feed Conveyer	(Optional)	(Optional)
Fuel Type	← Oil, Coal, Wood, Gas or Steam →	
Fuel consumption per Kg of made tea <i>(At ideal Fuel &amp; operating condition)</i>	Direct oil fired : 0.16 Litre, Steam : 2.0-3.0 Fire Wood : 375 to 600 MT/M3, Coal : 0.40x to 0.6kg, Gas : 0.20kg	
Space Occupied L x W x H (M.M)	13830x3810x4100	14100x4700x4100
Containers (20' x 20' x 8') required w/o heater	4	5
Dryer weight excluding heater in Kgs.	10400	12800

\*Varies with inlet moistue and the altitude of the Tea Estate.

\*Heat load supplied to the dryer considering inlet ambient temperature of 18° C

## OUR PRODUCT RANGE



**Samurai**

CTC Machines



**Samurai Plus**

CTC Machines



**Zentek**

CTC Machines



**Zenith**  
Forged Segment

CTC Segment

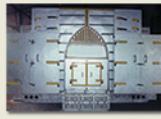


**ZENIFER-PVD**

Continuous Oxidisation Machine

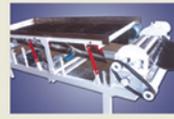


**ZENIFER**



**KOYLA**

Efficient Air Heater

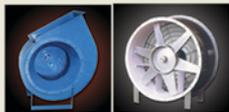


**BALL SEPARATOR**

Cum Breaker



**Zee-Sharp**



**Zeeflow**



**Green Leaf Shifter**



**Vibro-Screen**



**Fibre Extractor**



**Revovane**



Vibro Fluid Bed Dryer

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