



T & I Limited

Tea processing machinery
from plucking to packing

Conquest
Conqu

ConquestTM

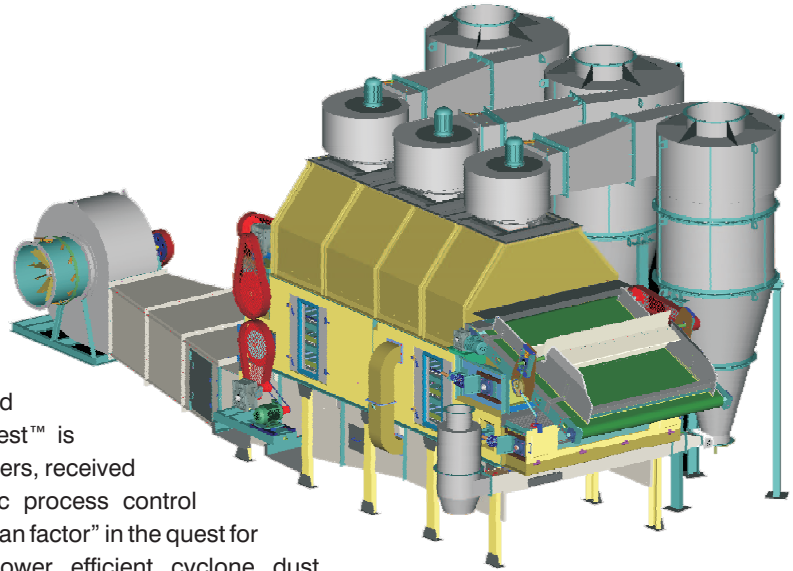
Combination Dryer for
CTC & Orthodox Tea Manufacture



T&I presents the latest in tea drying - Conquest™

Conquest™ Principle

The Conquest™ Dryer consists of a six-foot wide chamber, with insulated double walled construction and a fully overground plenum chamber. Tea travels on six feet wide perforated trays on the first two circuits before entering the fluidized bed zone. A stainless steel slotted grid sheet along with guide vanes underneath, provide uniform fluidization of teas. A pneumatic discharge valve has been fitted to collect teas at a single point and also cool the teas before discharge. Conquest™ is designed on user feedback on various tea dryers, received over the years, and incorporates automatic process control systems, for the first time to minimise the “human factor” in the quest for producing qualitea. Specially designed Power efficient cyclone dust extraction system picks up only fibre and fluff, leaves the tea particles undisturbed in the chamber. This is reflected in higher recovery percentage. The SSFD is a unique feature allowing Feeding and Discharging of teas from the same side of the Dryer. This provides ease of operation, handling of teas, and conveyorizing to the sorting room. This feature also improves liquor properties as the top circuit trays, on return, are also used for slow-drying the teas.



Combination Drier for Dual-Manufacture

Conquest™ highlights

HIGH OUTPUTS

The Conquest comes in various sizes — the smallest comprising of 4 modules & the largest of 8 modules. An 8 module Conquest with drying chamber size of length 32 x 6 ft. will give an output of 490 kgs. at 70% wither & at 120 deg.C. inlet temperature.

QUALITEA

The teas are brisk free of fibre & fluff, black with good bloom & liquor.

LOW POWER & FUEL CONSUMPTION

Hourly coal consumed is only 0.6 per kg. of made tea and oil consumption is 0.20ltrs. per kg of made tea. We recommend use of automatic Burner for higher fuel efficiency. Power consumed is only 76 watts per Kg. of made tea, i.e. at a unit cost of Rs. 3.50, electricity cost is 27paise only.

ZERO SPILLAGE

Being fully enclosed & fitted with an efficient dust extraction system, no tea particles escape into the drying room.

EASY & QUICK INSTALLATION

No excavation & civil work required, since plenum chamber is overground. Installation can be completed within 7 days.

FULLY AUTOMATIC CONTROL SYSTEM

It ensures that no under-fired or over-fired teas are produced even with variations in wither percentage.

SAME SIDE FEED & DISCHARGE (SSFD)

SSFD means “Same Side Feeding & Discharge” system. It is a revolutionary and exclusive design of our Tea Dryer and helps with substantial improvement in the quality of tea, reduction in dust fly-off, reduction in labour cost, improvement in monitoring of Tea, etc.

EASY TO CONVEYORIZE

Because of the full width feed of conveyor, the Conquest™ can be directly fed from the fermenting machine by a straight inclined conveyor. The pneumatic discharge allows for conveyORIZATION of dryer mouth teas to the sorting room.

GRADUAL MOISTURE REMOVAL

To ensure Quality tea without case hardening, in Conquest™ teas are fired across 3 stages.

DRYING TIME

The Conquest™ allows finer control over drying time. Even in the fluidization circuits the motion of the return second circuit trays give the teas a mechanically controlled movement.

Technical features

CHAMBER CONSTRUCTION

Modular construction of Conquest™ enables increasing the dryer capacity by adding on additional modules. Double-walled, glass-wool insulated panels ensure minimum heat loss and increase the thermal efficiency of the dryer.

Large windows to facilitate inspection and monitoring have been provided, with heat-resistant glass in each panel. Simple hinge mechanism provided for easy opening of windows.

The overall height of Conquest™ including the plenum chamber and cyclone is only 14.5 ft. Erection is easy since no underground civil work is required.

AERODYNAMIC PLENUM CHAMBER

Conquest™ has an in-built Aerodynamically designed thermal insulated Steel plenum chamber, thereby eliminating civil Work and ensuring uniform air distribution for better fluidization.

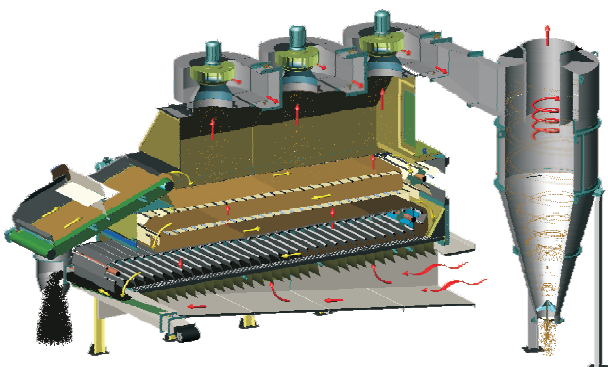
Multiple guide vanes are provided to achieve precise control of air flow.

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EFFICIENT CYCLONE

A power-efficient dust extraction system designed to maintain air balance within the dryer & extract only fibre and fluff, leaving the tea particles inside the dryer. The quantity of tea dust collected in the cyclone is negligible.



The system consists of individual cyclones with the extractor fans mounted on a common hood. Each fan is provided with Dampers to set the air balance. 'Portholes' are provided for easy cleaning & inspection.

PNEUMATIC DISCHARGE VALVE

This new arrangement, consisting of a blower & pneumatic chamber helps to cool the dryer mouth teas and enables

single point collection of teas on either side of the chamber. The exhaust air from the discharge valve is channelled back in to the dryer. Single point collection of teas makes conveyerisation easy.

CENTRALISED CONTROL PANEL

An operating panel consisting of 4 digital temperature indicators, time delay mechanism along with a chain condition monitor enables the operator to control the Conquest™ from a single control station.



A time delay mechanism ensures that all drives operate in the correct sequence. The chain condition monitor eliminates jamming of trays by detecting chain slackness, if any.

AUTOMATIC CONTROL SYSTEM(ACS)

Conquest™ incorporates a “self adjusting mechanism” to ensure consistency of end product in situations where withers & other operating parameters vary frequently.

The ACS comprises a Programmable Logic Counter (PLC) coupled with an AC frequency variator. The PLC receives the input of operating temperatures of the Conquest™ through temperature sensor and automatically adjusts the throughput time through the AC variator. All the drives of the Conquest™ are coupled to the AC variator.

If there is sudden change in the inlet moisture, Conquest™ will automatically increase the retention time to ensure that teas do not fall under-fired or over fired. Conquest™ ensures evenly fired teas, even without close monitoring always.

AEROFOIL DESIGN HOT AIR FAN

Conquest™ Hot Air Fan has been specially designed with aerofoil impeller blades to deliver the required quantum of hot air with lowest power consumption to achieve maximum efficiency. Inlet, as well as, outlet dampers have been provided in the Hot Air Fan for better air control.

IN-BUILT FRONT FEEDER

Full width feed conveyor comprising a 2000mm wide imported PVC Belt with a spreader is provided to facilitate uniform feed, either manually or from a simple conveyor. The feeder also acts as a buffer for holding dhool for facilitating adequate feed.

Technical Specifications

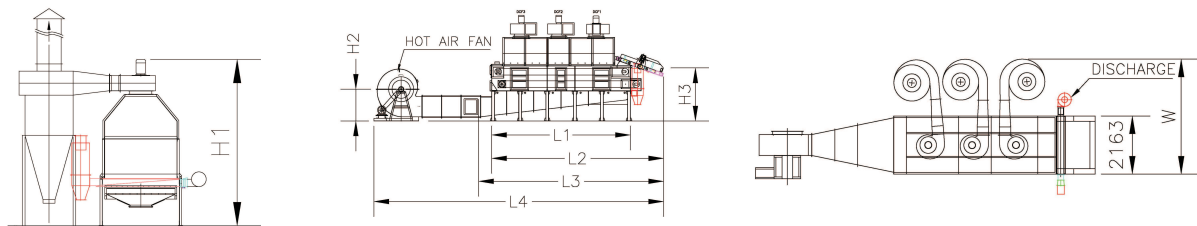
DESCRIPTION		4 module 16' x 6'	5 module 20' x 6'	6 module 24' x 6'	7 module 24' x 6'	8 module 32' x 6'
Water Evaporation Capacity (kgs./hr.)	CTC	570	710	850	990	1,130
	Orthodox	460	530	600	670	740
Dryer Output (made tea kgs./hr.)	CTC	250	310	370	430	490
	Orthodox	400	470	540	610	680
Average Inlet Temp. °c		120	120	120	120	120
Average Exhaust Temp. °C	CTC	45	45	45	45	45
	Orthodox	65	65	65	65	65
Average Moisture Content %	CTC	70	70	70	70	70
	Orthodox	55	55	55	55	55
Hot Air Requirement at 120 °c	Kgs./hr.	22,606	28,578	34,124	40,452	46,173
	CFM	14,805	18,717	22,407	26,495	26,495

POWER REQUIREMENT

Drying System						
Hot Air Fan	hp	20	25	30	40	40
Feed Conveyor	hp	1	1	1	1	1
Top Circuit	hp	1	1	1	1	1
Bottom Circuit	hp	2	2	2	2	2
Pneumatic Discharge	hp	2	2	2	2	2
Dust Collection System						
Dust Extractor Fan 1	hp	5	5	5	5	10
Dust Extractor Fan 2	hp	5	7.5	5	5	10
Dust Extractor Fan 3	hp	5	7.5	7.5	7.5	10
Dust Extractor Fan 4	hp	-	-	7.5	7.5	10

OVERALL DIMENSIONS

Length						
L1	mm	11,910	13,130	14,350	15,570	16,790
L2	mm	9,940	11,160	12,380	13,600	14,820
L3	mm	7,075	8,295	9,515	10,735	11,955
L4	mm	1,657	1,657	1,657	1,657	1,657
Width						
W1	mm	4,740	4,740	4,740	4,740	4,740
W2	mm	2,163	2,163	2,163	2,163	2,163
W3	mm	1,830	1,830	1,830	1,830	1,830
Height	mm	4,450	4,660	4,830	4,830	4,963



Due to continuous process of product development, designs and specifications are subject to change without prior notice. Some features, whether illustrated or mentioned in this catalog, may not be part of standard equipment and will be offered as optional extra items.



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