



Fong's National Engineering Co., Ltd.
Member Company of CHTC Fong's Group

ALLWIN Plus

High Temperature Package Dyeing Machine



Ultra-low Liquor Ratio 1:4
Temperature Deviation $\pm 0.3^{\circ}\text{C}$

Suitable for various material types:



Beam



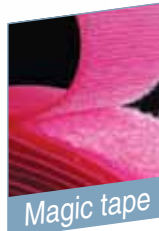
Package



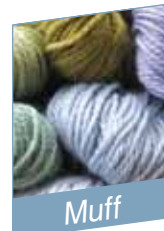
Loose fibre



Hank



Magic tape



Muff



Tape



Zipper

Yarn Dyeing

ALLWIN Plus

High Temperature Package
Dyeing Machine

The essential dyeing machine for modern dyehouse in 21st Century. In concern with the environment and energy saving, Fong's gives you the ALLWIN plus, with extra single-flow controls from traditional ALLWIN dual-flow dyeing. The revolutionary wave dyeing technique and intelligent control reduce the liquor ratio ever low to 1:4. Primary built with 316Ti/1.4571 stainless steel of European Standards, ALLWIN plus empowers your production to the leading edge of efficiency and eco-friendliness.

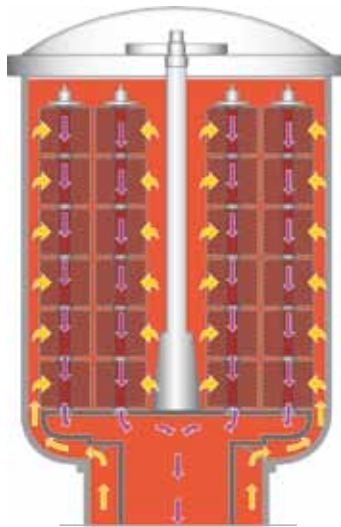
Dual-flow and Single Inside-out Flow

Packages and Liquor loading scenario

O/I

The Route of Liquor flow for **Dual-flow** operation

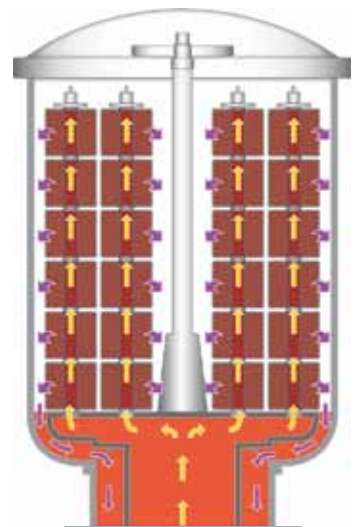
Outside-In flow process is inevitable during a Dual-flow operation, thus dye liquor has to diffuse into the packages through its outside surface, passing through the spindles, reversal device, heat exchanger and finally to the pump. It is necessary for all the packages and fasteners to be immersed under water level to prevent air suction through the exposed packages outside surface, otherwise it will cause pressure difference and unsteady flow which affect the dyeing result.



I/O

The Route of Liquor flow for **Single Inside-out Flow** operation

On the other hand, during an Single Inside-out Flow process, dye liquor discharged from the pump enters the heat exchanger and reversal device, passing through carrier and spindles, then reaches the packages and diffuses towards surface outside. It is required only a sufficient water level at the kier bottom to maintain steady pump operation and not necessary to have all packages immersed with liquor.



Wave Dyeing Technology

Owing to the reversal function on traditional yarn dyeing machines, the packages could be expanded and contracted by pressure changes during switch of flow, hence increasing the effectiveness and evenness in dyeing. Since the single flow concept has no switchable feature, the pump should vary its speed to generate pressure difference according to specific principles. By executing a specific period of change in pump frequency, smashing the packages like waves such that it could move under differentiating pressure would lead to perfect utilization the advantage of dual flow concept, in a much lower demand of water and electricity.

Features

1. **Multiple Safety Interlock**
Distinctive temperature, pressure, and water level multiple safety interlock, ensure operational safety.
2. **Fuzzy Logic Temperature Control**
Unique Fuzzy Logic Temperature Control technology, temperature control can be confined down to $\pm 0.3^{\circ}\text{C}$.
3. **ILC Intelligent Leveling Control**
Optimized flow reversal process, ensuring optimal inflow and outflow ratio ensuring exceptional leveling result.
4. **Patented All-In-One Layout**
Patented unified compact layout of V-pump, heat exchanger, and 180° flow reversal device. Lower liquor ratio and improved heat exchange efficiency.
5. **AIR⁺Advanced Intelligent Rinsing System***
Fully automated rinsing process optimizes rinsing time and water consumption, at the same time achieves optimal rinsing quality.
6. **Multi-Functional Preparation Tank***
Equal-volume Multi-Functional Preparation Tank, together with pre-heating and pre-mixing functions, significantly reduce process time.
7. **High Temperature Drain***
Allows hot liquor to be discharged without cooling thus shorten the dyeing time.
8. **Hydro-extraction***
Effectively removes excess water from packages or beams by pressure difference.

Performance Comparison

Compared to traditional dual flow dyeing, **ALLWIN Plus** Single Inside-out Flow Dyeing machine achieves versatile saving by economizing water consumption, electricity, steam, chemicals and time, which is the best dyeing equipment making our customers in dominant position.

| Assumption | Single-flow liquor ratio 1 : 4 | Dual-flow liquor ratio 1 : 5.2 | On same capacity and recipe | |
|---------------|--------------------------------|--------------------------------|-----------------------------|-------------------|
| Item | Water Savings | Electricity Savings | Steam Savings | Chemicals Savings |
| Deep Shades | 23.2 % | 15.0 % | 17.2 % | 23.1 % |
| Medium Shades | 16.7 % | 14.5 % | 18.6 % | 23.1 % |
| Pale Shades | 14.8 % | 14.5 % | 18.6 % | 23.1 % |

The above test comparative data could have variance due to difference in dyeing techniques, materials, water quality and operation methods and are for reference only.

Advantages

1. Ultra-Low Liquor Ratio 1:4

Saving dyestuff, chemicals, steam and water consumption, at the same time reduce effluent.

2. Reduced Processes Time

Smooth flow and exchange of dye liquor speed up dye processes, shorten overall dye cycle.

3. Energy Saving

High efficiency heat exchanger, significantly reduce heat loss, improves efficiency. Together with frequency inverter driven main pump motor, reduces power consumption.

4. Save Production Cost

Save on water, energy, and chemicals, saving up to 20% on production cost.

5. Flexible Loading

Exclusive quick operation conjunction tube, achieving flexible loading in production.

6. Broad Application

Suitable for process natural and man-made fibres and their blends in forms of yarn, beam, loose fibres, hanks and many more.

7. Reduce Spatial Occupancy

Compact pipework layout, saving 25% of space occupancy.

Quick unloading carrier (Optional)

30 mins Saving*
Labour Free



1 Carrier loaded with packages



2 Unloading basket is hoisted halfway



3 Unloading basket is completely removed from carrier



4 Packages are ready to be removed via the access door

Quick operation
Flexible loading kit



Quick operation conjugation tube



"Up-Right" bottom disc/leak proof at the bottom of spindle



Fong's patented leak proof fastener



Flexible loading to maintain liquor ratio

*Time saved which ALLWIN-226(15A) - carrier can be re-applied to production after 2010 packages are unloaded.

Technical Data



| | |
|--------------------|--|
| Design temperature | : 140°C |
| Design pressure | : 5.2bar |
| Heating gradient | : 25°C ~ 100°C approx. 4.5°C/min 100°C ~ 130°C approx. 2.5°C/min (dry saturated steam pressure at 7bar) |
| Cooling gradient | : 130°C ~ 100°C approx. 3°C/min 100°C ~ 80°C approx. 2°C/min (cooling water at 3bar, 25°C) |



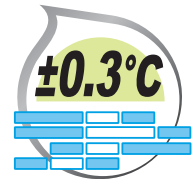
ALLWIN Plus achieves versatile saving by economizing water consumption, electricity, steam, chemicals and time, which is the best dyeing equipment making our customers in dominant position.



FC30 Series Program Controller

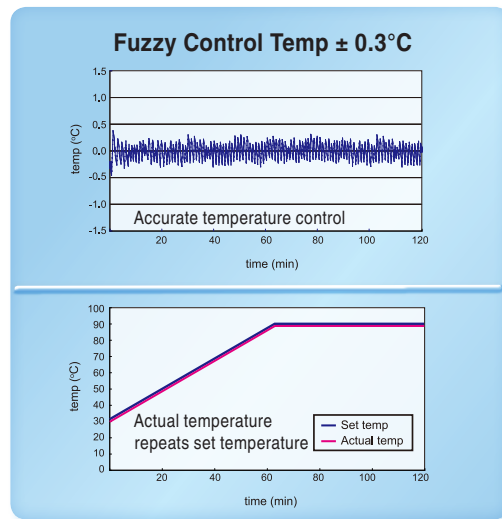
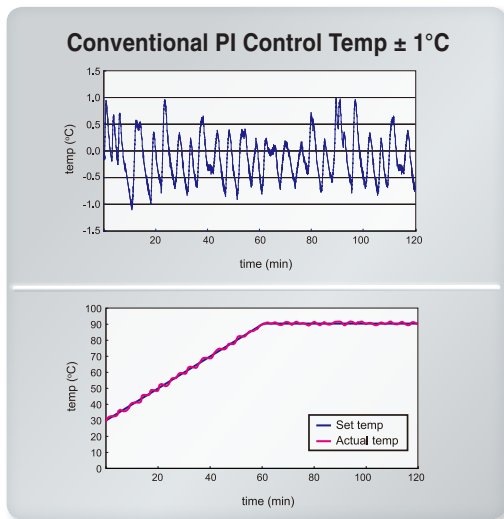
For The Most Dyehouse Network Advanced Control System

New generation of FC30 program controller has a 6.5-inch 640x480-pixel, TFT color LCD display together with novel control functions, provides the most cost-effective dye cycle control. FC30 can also integrate with our **Viewtex** and THEN-TDS central computer system, providing comprehensive control management.

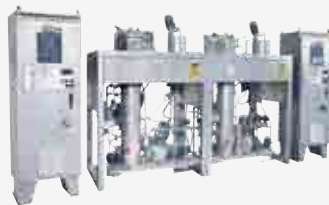


Fuzzy Logic Temperature Control

Unique Fuzzy Logic Temperature Control technology, temperature control can be confined down to $\pm 0.3^{\circ}\text{C}$



LABWIN Dyeing Machine



Laboratory Package Dyeing Machine
Capacity: 1.2 ~ 28.8kg in 13 models

MICROWIN Dyeing Machine



Mini Sample Yarn Dyeing Machine
Capacity: 200 ~ 600g in 2 models

RKB Dryer



Radio Frequency + Hot Air
Capacity: Over 500 packages/batch
(Depends on actual sizes)

Also available

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