

ECO-8 / ECO-8-SUPER

Multi Rope Soft Dyeing Machine





ECO-8, ECO-8-SUPER Multi Rope Soft Dyeing Machine

The ECO-8 is a long L shape machine that handles the fabric very gently. Depending on the design of the fabric conveyance system, the three series of models are able to run fabrics in one, two or three ropes per tube.

A wide range of machine models are available to process very heavy and very light fabrics, such as piles and single jersey respectively. Also by incorporating the advanced automatic control devices, Multi-function stock tank (MST) and control software, the ECO-8-SR with SUPER FUNCTIONS allows the shortest dyeing time* to only 298 minutes. The total water consumption** is as low as 38L/kg.

The highly efficient and cost effective ECO-8 provides the competitive edge to meet ever changing market demands. With the use of advanced polymeric material, the ECO-8 maintains among its types the extra low liquid ratio of 1:6*** at a maximum tube capacity up to 550 kg.

Advantages

Dyeing time* reduced to 298 minutes

- Advanced and automatic control devices
- Precision measuring instruments
- Advanced control software

Water consumption** as low as 38 L/kg

- Less effluent, more environmental friendly
- Saving on steam consumption
- Saving on effluent treatment
- Saving on dyestuff and chemical additives

Saving on fresh water

- Multi-Saving Rinsing System (MSR)
- AIR+ Advanced Intelligent Rinsing System

Reduction in electrical power consumption

- Soft start of main pump motor by frequency inverter

- Reduction of flow by lowering pump speed
- Results from shorter process time
- Accurate dosing control
- Advanced drop bath technique without stopping the machine

More environmental friendly

- Less water consumption
- Less discharge of effluent
- Less consumption of electric power

* The dyeing time does not include the time for loading, unloading, softening etc. It will only be achieved when the machine supplied with all features of SUPER FUNCTIONS.

** The figure of water consumption quoted is for light shade color. The figures for medium and dark shade will be shown upon presentation.

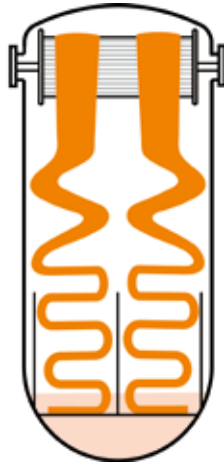
*** The liquor ratio is based on full loading of type T55.

Versions and Features

3 versions available for selection



Medium Batch ECO-8:
Single rope per tube



ECO-8-D:
Double ropes per tube



ECO-8-T:
Triple ropes per tube

Standard Features of ECO-8

- Machine body and major parts wetted by dyeing liquid are made of 316Ti/316L/1.4571/1.4404/2304 corrosion resistant stainless steel
- Highly efficient stainless steel centrifugal pump
- Lifter reel driven by frequency inverter controlled gear reduction motor
- ATS Nozzle
- Automatic fabric upper tangling release device
- Pneumatic control valves for heating and cooling, with fuzzy logic temperature control function
- Pneumatic valves for fill, drain and overflow rinse function
- Internal spray cleaning device
- Highly efficient tubular heat exchanger
- Pressurizing and depressurising system for main kier
- Level indicator with level sensor
- Service tank with feed pump, valves, stirring function and dosing control with high precision flow control device
- Take off roller
- Multi-core control cable
- Service platform with FRC plank grating
- Main control cabinet with FC28 program controller

Advanced Features of ECO-8-SR

- Programmable second fill valve with metering function
- Programmable second drain valve
- Precision ΔP measuring device for level control
- Second service tank with individual feed pump, valves, stirring function and dosing control with high precision flow control device
- Multi-Saving Rinsing System (MSR)
- AIR⁺ Advanced Intelligent Rinsing System
- Multi-Function Stock Tank (MST)



Loading of heavy material



Service door (double ring guide ring)

Options and Technical Data



1 Service tank with feed pump, valves and stirring function

2 Heat exchanger and replaceable filter insert

3 Multi-Function Stock Tank (MST)

4 Modulating control for dosing

5 Highly efficient stainless steel centrifugal pump

6 Electromagnetic flowmeter

Options

- Layout plaiter
- Coupling accessories
- Extra length of multi-core control cable
- Spare filter insert
- Seam detector
- HST hot water stock tank (capacity: approx. the capacity of the machine at liquor ratio 1:4.5)
- Standard ECO-8 can take one or more of the features of the SUPER FUNCTIONS to enhance machine performance

- Heating rate: 25 °C–100 °C average 5 °C/min.
100 °C–130 °C average 2.5 °C/min. (dry saturated steam pressure at 7 bar)
- Cooling rate: 130 °C–100 °C average 3 °C/min.
100 °C–85 °C average 2 °C/min. (cooling water at 3 bar, 25 °C)

Multi-Function Stock Tank (MST)

- Maximum working temperature: 85 °C⁺
- Maximum working pressure: atmospheric
- Heating rate: 25 °C–85 °C average 5 °C/min.
(dry saturated steam pressure at 7 bar)
- Capacity: approx. the capacity of the machine at liquor ratio 1:4.5

Technical Data

Main machine

- Liquor ratio: 1:6
- Maximum speed: from 250~400 m/min.
depending on machine type
- Design temperature: 140 °C⁺
- Design pressure: 3.5 bar

Remarks: to ensure the top performance of the machine, the following criteria must be fulfilled:

- The steam supply must be dry, saturated and at a pressure of 7 bar.
- The temperature of water supply is not higher than 25 °C and at a pressure of 3 bar.
- * The standard temperature is measured at sea level under atmospheric pressure. The max. working temperature is lower at a higher altitude.

Creating Value Added

27% savings on total production cost with FONG'S ECO-8

(100% cotton jersey 260 g/m²)

Program Conditions

Recipe			
Bleaching & Scouring	3.0 g/L	Lubricant C	A
	2.0 g/L	NaOH(flake)	A
	3.0 g/L	Tinclarite COM	A
	4.0 g/L	H ₂ O ₂	A
	2.8 g/L	Alkali cracking AC	B
	0.9 g/L	Catalase CAT	C
Dyeing	1.0 g/L	Sequesting DS	D
	0.52 g/L	Mild oxidizer RG	D
	1.0 g/L	Lubricant C	D
	2.65%	Reactive dyes	
	60.0 g/L	Na ₂ SO ₄	
	20.0 g/L	Na ₂ CO ₃	
Rinsing	2.0 g/L	HAc	E
	1.0 g/L	Sequesting RRG	F

Fabric quantity: 1000kg per tube

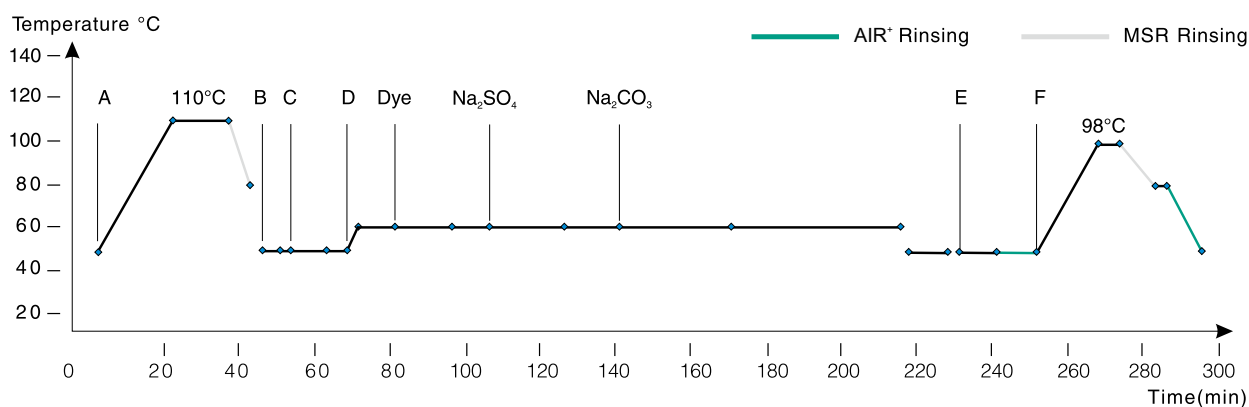
Liquor ratio: 1:6

Results

Production Cost Comparison Table		Saving
Steam		24%
Water		36%
Electricity		43%
Total Energy Cost		30%
Dyestuff & Auxiliary Chemical		24%
Na ₂ SO ₄		40%
Total Chemical Cost		26%
Total Production Cost		27%

FONG'S ECO-8 Multi Rope Soft Dyeing Machine
 Conventional High Temperature Dyeing Machine

Dyeing Program	Fast Process	Conventional Process	Saving
Batch capacity per chamber [kg]	1000	1000	-
Liquor ratio	1 : 6	1 : 10	-
Scouring & bleaching [min.]	63	130	52%
Dyeing (min)	156	202	23%
Rinsing [min.]	79	151	48%
Total Processing Time [min.]	298	483	38%



The results quoted are confined to the applicable installation.

For further information, please contact Fong's National Engineering Co., Ltd.

Specifications

ECO-8

Model	Type	No. of nozzles per tube	No. of tubes	Capacity [kg]	Suitable for fabric [g/m]	Total power [kW]	Dimensions [mm]		
							L	W	H
Medium Batch ECO-8-ST	T10	1	1	80~100	200~700	14.5	5400	1850	2800
	T15	1	1	120~150		14.5	6050	1900	2800
	T20	1	1	160~200		14.5	6900	1900	2800
ECO-8-D1T	T25	2	1	200~250		19.2	6600	2200	3300
	T40	2	1	320~400		19.9	7600	2500	3300
	T55	2	1	440~550		19.9	9600	2700	3300
ECO-8-D2T	T25	2	2	400~500		36.9	6600	3600	3300
	T40	2	2	640~800		36.9	7600	3700	3300
	T55	2	2	880~1100		36.9	9660	3900	3300
ECO-8-D3T	T25	2	3	600~750		45.4	6600	5100	3300
	T40	2	3	960~1200		47.2	7600	5300	3300
	T55	2	3	1320~1650		47.2	9600	5450	3300
ECO-8-D4T	T25	2	4	800~1000		56.7	7600	6900	3300
	T40	2	4	1280~1600		58.5	7600	7200	3300
	T55	2	4	1760~2200		58.5	9660	7500	3300
ECO-8-D6T	T25	2	6	1200~1500		91.5	7600	9700	3300
	T40	2	6	1920~2400		91.5	8300	9900	3300
	T55	2	6	2640~3300		91.5	9660	10200	3300
ECO-8-D8T	T25	2	8	1600~2000	147	7600	13200	3300	
	T40	2	8	2560~3200	147	8300	13400	3300	
	T55	2	8	3520~4400	147	11600	16000	3300	
ECO-8-T1T	T25	3	1	200~250	100~350	27	6600	2200	3300
	T40	3	1	320~400		27.7	7600	2500	3300
ECO-8-T2T	T25	3	2	400~500		53.4	6600	3600	3300
	T40	3	2	640~800		53.4	7600	3700	3300
ECO-8-T3T	T25	3	3	600~750		77.2	6600	5100	3300
	T40	3	3	960~1200		79	7600	5300	3300
ECO-8-T4T	T25	3	4	800~1000		89.7	7600	6900	3300
	T40	3	4	1280~1600		91.5	8300	7200	3300
ECO-8-T6T	T25	3	6	1200~1500		124.3	7600	9700	3300
	T40	3	6	1920~2400		124.3	8300	9900	3300
ECO-8-T8T	T25	3	8	1600~2000		165	7600	13200	3300
	T40	3	8	2560~3200		165	8300	13400	3300

Specifications

ECO-8-SUPER

Model	Type	No. of nozzles per tube	No. of tubes	Capacity [kg]	Suitable for fabric [g/m]	Total power [kW]	Dimensions [mm]		
							L	W	H
Medium Batch ECO-8-SR-ST	T10	1	1	80~100	200~700	14.5	5400	1850	2800
	T15	1	1	120~150		18.5	6050	2600	3600
	T20	1	1	160~200		18.5	6900	2700	3600
ECO-8-SR-D1T	T25	2	1	200~250		23.2	6600	3050	3600
	T40	2	1	320~400		23.9	7600	3100	3600
	T55	2	1	440~550		23.9	9600	3250	3600
ECO-8-SR-D2T	T25	2	2	400~500		42.4	6600	4400	3600
	T40	2	2	640~800		42.4	7600	4550	3600
	T55	2	2	880~1100		42.4	9660	4800	3600
ECO-8-SR-D3T	T25	2	3	600~750		50.9	6600	5800	3600
	T40	2	3	960~1200	52.7	7600	6100	3600	
	T55	2	3	1320~1650	52.7	9600	6200	3600	
ECO-8-SR-D4T	T25	2	4	800~1000	64.2	7600	7700	3600	
	T40	2	4	1280~1600	66	7600	8000	3600	
	T55	2	4	1760~2200	66	9660	8300	3600	
ECO-8-SR-D6T	T25	2	6	1200~1500	102.5	8800	9700	3600	
	T40	2	6	1920~2400	102.5	9600	9900	3600	
	T55	2	6	2640~3300	102.5	11600	12000	3600	
ECO-8-SR-D8T	T25	2	8	1600~2000	158	8800	13200	3600	
	T40	2	8	2560~3200	158	9600	13400	3600	
	T55	2	8	3520~4400	158	11600	16000	3600	
ECO-8-SR-T1T	T25	3	1	200~250	100~350	31	6600	3050	3600
	T40	3	1	320~400		31.7	7600	3100	3600
ECO-8-SR-T2T	T25	3	2	400~500		58.9	6600	4400	3600
	T40	3	2	640~800		58.9	7600	4550	3600
ECO-8-SR-T3T	T25	3	3	600~750		82.7	6600	5800	3600
	T40	3	3	960~1200		84.5	7600	6100	3600
ECO-8-SR-T4T	T25	3	4	800~1000		97.2	7600	7700	3600
	T40	3	4	1280~1600		99	8300	8000	3600
ECO-8-SR-T6T	T25	3	6	1200~1500		135.3	8600	9700	3600
	T40	3	6	1920~2400		135.3	9600	9900	3600
ECO-8-SR-T8T	T25	3	8	1600~2000		176	8800	13200	3600
	T40	3	8	2560~3200		176	9600	13400	3600

FC Series Program Controller* for the Dyehouse Network Advanced Control System

Microprocessor based FC Series program controller* provides cost-effective and high performance dye cycle control facility.

Comprehensive control management is achievable by integrating individual FC Series program controller with the central computer system **Viewtex**.

Viewtex is developed by FONG'S to program and monitor a number of linked machines.



* FC program controller refers to the latest version in the series.



Fong's National Engineering (Shenzhen) Co., Ltd.

receives ISO9001:2000 quality assurance certification from LRQA.

Fong's National Engineering (Shenzhen) Co., Ltd

is competent to manufacture pressure vessels according to the requirements of ASME BPV Sec.VIII DIV.1, EN13445, BS PD5500, AS1210, JIS B8243, GB etc. Unless specified in the order, standard execution of pressure vessel parts/components are designed, produced and inspected according to BS PD5500 Cat.3.

We reserve our rights to make any technical improvement without further notice.
Details shown in this leaflet are only for information.
Scope of delivery and technical specification of product supplied shall be in accordance with the contract.

Fong's National Engineering Co., Ltd.

8/F., 22-28 Cheung Tat Road,
Tsing Yi, Hong Kong
Tel: +852 2497 3300
Fax: +852 2432 2552
Email: enquiry@fongs.com
www.fongs.com

Fong's National Engineering (Shenzhen) Co., Ltd.

17-19, Lixin Road, Danzhotou Industrial Zone, Nanwan Sub-District,
Longgang District, Shenzhen, Guangdong, PRC
Postal Code: 518114
Tel: +86 755 8473 6288
Fax: +86 755 8473 6154



A member of 