



Garment Washing and Dyeing Integrated Machine Technical Document



JZ-B

Wuxi Jize Machinery Technology Co., Ltd., located in the beautiful city of Wuxi on the shores of the magnificent Taihu Lake, is a modern enterprise dedicated to garment dyeing, washing, and finishing equipment.

The JZ-B Garment Washing and Dyeing Integrated Machine is a water-washing and dyeing equipment that combines the functions of water-washing, dyeing, finishing, and dehydration into one. It significantly reduces energy consumption during the garment washing and dyeing process, reduces labor intensity and the number of workers required, streamlines the production process, and improves production efficiency.

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2022/6/23

1 Overview

1.1 The JZ-B Garment Dyeing series products are characterized by low energy consumption, high production capacity, low labor requirements, and stable product quality through full automatic control. The structure of this series of products has been greatly optimized, distinguishing it from traditional garment dyeing machines. It effectively reduces water and steam consumption during the washing and dyeing process, saving approximately 50% of water and 30% of steam. Additionally, it reduces the usage of dyeing chemicals and additives by around 10%. The JZ-B-400 model has a rated capacity of 200 kg of dry clothes, which is 1.5 to 2 times the capacity of traditional 600-pound washing machines. The machine features fully automated control, equipped with an automatic discharge system and dehydration system, significantly reducing labor intensity and improving working conditions. It addresses labor shortage issues, increases equipment capacity and individual productivity, and reduces labor requirements for the same output. The equipment is equipped with functions such as automatic operation, temperature control, water control, and feeding, reducing the dependence on frontline workers for product quality and alleviating the shortage of skilled workers. In summary, this equipment can save more than 50% of labor costs. The machine adopts full automation control, equipped with a central control system interface and an interface for automatic delivery of dyeing chemicals, providing a solid foundation for the modernization and upgrading of washing plants.

1.2 Machine Models

Item	Machine Name	Model
1	Fully Automatic Washing Dyeing and Dewatering Machine	JZ-B-400
2	Fully Automatic Washing Dyeing and Dewatering Machine	JZ-B-300

2 Features

2.1 Ultra-low liquor ratio

The ultra-low liquor ratio of the garment dyeing process is achieved with a comprehensive liquor ratio of 1:3 to 1:6. The machine has a small gap of only 4cm

between the inner and outer walls, minimizing unnecessary space and reducing the liquor ratio. The equipment adopts a vertical structure, allowing the garments to be fully opened and come into full contact with the dye liquor, further reducing the liquor ratio. Most importantly, the equipment is equipped with a special-sized beating rib cage (refer to Figure 1), which enables penetration of the dye liquor both inside and outside the garments. The garments are fully exposed to the dye liquor inside the equipment, significantly enhancing the interaction between the dye liquor and the garments, resulting in a substantial reduction in the liquor ratio. In summary, the new vertical washing machine reduces the liquor ratio by 12 to 14 percentage points compared to traditional equipment. This greatly reduces production costs for customers and contributes to environmental conservation.

P1 Turning Cage Display



- 2.2 While significantly reducing water consumption, the machine also greatly reduces the usage of steam. As the water consumption per garment decreases, the steam required for water heating naturally decreases as well. Additionally, due to the good sealing of the machine, there is less heat dissipation, resulting in a certain reduction in steam usage. According to feedback from numerous customers, steam usage can be reduced by approximately 30%.
- 2.3 The large-diameter drum (JZ-B-200 drum $\phi 1900$) allows garments to be spread out, opened up, and loaded in large quantities. The JZ-B-200 model can accommodate a load of 180 kg to 220 kg for reactive dyeing. For modified azo dyeing, the load capacity is 150 kg to 190 kg, and for coating dyeing, it is also 150 kg to 190 kg. The machine's capacity far exceeds that of traditional 600 machines, significantly improving production efficiency and reducing resource waste in washing and dyeing factories.
- 2.4 The equipment is equipped with an automatic unloading system (refer to Figure 2), which reduces the labor intensity of retrieving garments and improves unloading efficiency. For example, the new machine (JZ-B-200) has an unloading time of 1.5 minutes to 3 minutes, while the old machine's retrieval time is 6 minutes to 8 minutes. Additionally, the equipment is equipped with a high-speed dehydration function with a maximum rotation speed of 500 r/min. This allows for the implementation of the dehydration process without removing the garments from the machine after washing and dyeing. After dehydration, the garments can be directly transferred to a drying machine, eliminating the need for the entire process of transferring the goods from the washing machine to the dehydration machine and then reloading them. This saves time, labor, and effort.



P2 Out the finished

2.5 The equipment is equipped with a flow rate control function for water inlet, allowing for the setting of different water volumes according to different processes. This eliminates the need for manual monitoring. The machine also has a quantitative temperature rise function, allowing for temperature setting and control of the heating rate. Temperature is a crucial factor in the dyeing process, and the automatic temperature control ensures good dyeing uniformity, consistency, and minimal batch variations, ensuring quality assurance. The equipment is equipped with a fully automatic feeding system, including automatic water inlet, automatic temperature rise, automatic reflux, automatic feeding, quantitative feeding, and automatic reflux system. Different feeding modes can be selected according to the choice of different dyes, thereby improving dyeing uniformity (refer to Figure 3 for the feeding cylinder and Figure 4 for the control cabinet). The equipment also has a central control expansion interface and an expansion interface for automatic dyeing chemical delivery.



P3 Barrel



图 4 电器柜

3 Machine Technical Specifications

3.1 Machine Parameters Table

Type \ Model	JZ-B-400	JZ-B-300
Rated Load Capacity (Kg)	200	150
Dyeing Speed (r/min)	18~30	18~30
Dewatering Speed	500	500
Outfeed Angle (°)	18	18
Turning Cage Size (mm)	Φ1900*1350	Φ1800*1350
Power (Kw)	50	42
Dimension L×W×H (mm)	4550*2800*3100	4150*2800*2900
Inlet Diameter	DN65	DN50
Outlet Diameter	DN200	DN150
Heat Diameter	DN40	DN40
Barrel Inlet Diameter	DN20	DN20
Barrel Heat Diameter	DN20	DN20
Surface	Powder Coat, Painting	Powder Coat, Painting
Internal Surface	Polishing	Polishing

3.2 Mechanical Configuration Parameters

Material	Turning Cage	S30408	Domestic
	Chemical barrel	S31603	Domestic
	Front elevation, outer barrel	S30408	Domestic
	Electrical box shell	SUS304	Domestic
	Bottom foot, Frame	Carbon Steel A3	Domestic
Pumps	Circulation Pumps	Special pumps for garment dyeing	Wuxi
	Dosing pumps	New Yang Ming (with its own waterproof ring)	Wuxi
	Agitator	New Yang Ming (with its own waterproof ring)	Wuxi
Valve	Water inlet valve, drain valve	Pneumatic disc valve	Wuxi
	Heating valve	Pneumatic angle seat valve (Y	Wuxi



		type)	
	Reflux, backwash, chemical material valve	Pneumatic angle seat valve (Y type)	Domestic
Electrical	Main motor	Jiangsu Guomao	Changzhou
	Human-machine interaction	Kunlun Tongtai	Kunlun, tongtai
	Frequency converter	Yingweiteng	Shenzhen
	PLC	Mitsubishi	Japan
	Push Button	Jinlian	Taiwan
	Solenoid valve	210. 220	JELPC- Sino-Korean Joint Venture
	Oil mist separator	NanTian	Zhejiang
	Master cylinder water level controller	Pressure type	Domestic
	Tank water level controller	Air bubble type	Danfosi
	Proximity switch	Ottonix	Korea
	Encoder	Omron	Japan
Main low voltage appliances	Schneider	Korea/ Japan	
Surface	Inside surface of rotating cage	Mirror polishing	Outsourcing
	Outer surface of the main cage	Plastic spraying, paint spraying	Outsourcing
	Surface of electric box	Plastic spraying	Outsourcing
	Inside surface of the barrel	Mirror polishing	Outsourcing
	Outside surface of the barrel	Paint spraying	Outsourcing
	Floor foot	Paint spraying	Outsourcing
Others	Spindle steel	Yoshizawa customization	Custom
	Bearing	TWB	USA
	Water seal	CFW	Germany
Note: Unlisted parts are domestic quality brands.			

4 Project Photos



