



JR242 SOFT TRADEMARK PRINTING MACHINE

Operation Manual

(Welcome to purchase Jingda Printing Machine)

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JR242 Flexo Label Printing Machine

1. Introduction

1. Read this “User’s Manual” carefully and have a complete understanding of the content before transporting, installing, adjusting, operating and maintaining the JR flexographic plate series of trademark printers.
2. In transporting, installing, and operating of the machine as well as handling electricity and high temperature, the user should not only observe the safety specification and meet the requirement of the “User’s Manual”, but also the related national rules and regulations in the fields of machinery and electricity.
3. The “User’s Manual” and the intellectual property right of the flexographic plate printer series belong to Rui’an Jingda Printing Machinery Company, Ltd., which should not be disclosed to the third party. Should there be any violation of the right, the company is entitled to take a legal action.

Since 2000, the company has become a professional enterprise specializing in the design, development and manufacture of the printing machines. We have put into the national and international markets all kinds of printers and thus won the trust of users both at home and abroad. At the same time to improve quality and increase variety, we have also standardized and serialized our products.

The JR flexographic plate series of trademark printers are of high quality and variety. They have multiple functions and reasonable prices as well as reliable after-sale services. They are the ideal choice for flexographic plate printer users. Since their introduction to the markets in Europe, America, Southeast Asia, the Middle East and South Africa in 2002, they have been highly evaluated and liked by the commercial agents and users in various countries and regions.

To correctly use the flexographic plate series of trademark printers, please read the “User’s Manual” carefully and get a complete understanding of its content before transporting, hoisting, installing, adjusting, and operating the machine.

I. Operating principle

When the machine is switched on, the anilox roller will rotate in the ink duct. By controlling the clearance between the ink scraper and the anilox roller, you can deliver a proper amount of ink evenly to the flexographic plate of the circumferential surface of the printing plate wheel. The flexographic plate roller carries the ink to the surface of the material to be printed, which is dried and rolled by the electrically heated drying board to finish the process. Environment friendly, the machine is characterized by its speed and efficiency.

The printed material is put into the electric thermostat ventilating and drying cabinet for about 5 and 6 hours, with the effect of fast color and tolerant laundry. The ink layer on the printed material is solid and three-dimensional. (For details, please see the related description of driers of our auxiliary printing series.)

Table of Contents

Chapter I. Features

1. Unfolding part
2. photoelectric switch
3. Printing station
4. ink duct
5. Operating box
6. Transmission and power supply
7. Optional accessories

Chapter II. Specifications

Chapter III. Transportation and installation

1. Transportation
2. Installation of main machine
3. Power connection

Chapter IV. Testing

Chapter V. Operation explanation

1. Unfolding part
2. Main control box
3. Selecting printing roller and paired gear formula
4. Calibration system
5. Selecting anilox roller

Chapter VI. Maintenance and lubrication

1. Lubricating points
2. Maintenance
3. Roller
4. Gear
5. Bearings
6. Plate cylinder
7. Daily checking items

8. Weekly checking items
9. Semi-annually checking items

Chapter VII. Trouble shooting

1. Printing problems
2. Operating trouble

Annex:

1. Electric circuit
2. Statistic table for the reduction of plate length
3. Measurement of plate cylinder
4. Sketch map of paper advancement

Chapter I. Features

JR242 flexographic plate printer is characterized by long printing length (190-400mm), easy register, stable control of tension, non-dislocation when starting up, and quick drying.

1. Unfolding part:

The rolling out tension can be made by adjusting the friction plate, spring and nut on the rolling axle. The tension of the material on the rolling out axle can be made by inserting a stainless-steel rod into the paper.

2. Photoelectric switch:

There are two modes in the setting: ON and OFF. When the machine is in the ON mode, the photoelectric switch must be screened by the material for the machine to start up. When the material has been printed, the machine stops working.

Tension roller: The tension roller is used to control the tension of the rolling out material. When the material is found looser and looser in the process of printing when passing the tension roller and the tension presser, the rolling out tension must be adjusted greater (there is adjusting knob in the electric part.)

Unfolding roller:

It has synchronization function when the material passes this structure.

3. Printing station:

The printing station is composed of the front and two colors on the back, of which one-color group is made of printing cylinder, paired gear anilox roller, ink duct, movable plate, hand wheel, and registering device when the machine stops.

The size of the printing cylinder and the paired gear can be changed. (for details, please refer to Measurement Table)

The anilox roller is set at 200 lines per inch when the machine leaves the factory. When dot pattern is printed, the anilox roller can be selected by the ratio of 4 to 1. The cleaning of the anilox roller is very important, because the color will become dim when the anilox roller is blocked by ink.

4. Ink duct:

The ink duct is composed of ink knife, duct distributor and ink adjusting screw. When the ink duct is mounted on to the machine, the screws at both sides of the ink duct must be adjusted so that the ink distributor touches slightly with the ex-circle of the anilox roller. When the anilox roller is turned with hand, it must be turned smoothly.

NB. Please do not mix up the ex-factory mark on the ink duct.

The printing part of JR-242 flexographic plate printer is of center drum, which can be

used to print large trademark (180mm × 350mm) with high quality and good coloring effect.

It is easy to use and quick to adjust. A single operator can finish the adjustment of a 4-color machine within minutes, and the thickness of the material to be printed ranges from 0.1 to 0.5mm. Multiple colors can be printed when the material passes the machine once, with the maximum printing area being 180mm × 350mm and the horizontal and vertical registering control within ±5mm, quick and easy.

Registering error:

The registering accuracy is ±0.1mm±0.1mm. The thickness of a typical flexographic plate of the trademark printer is 1.7mm.

5. Folding part:

The JR-242 flexographic plate printer is configured with a paper rolling axle, the maximum rolling diameter is Φ16 (400mm) .

6. Operating box:

The operating box is made of the following devices: PVC, ON switch, OFF switch, inch switch and speed-adjusting switch.

7. Transmission and power requirement

The JR-242 flexographic plate printer is configured with AC motor, speed-up and speed-down control, which enables the speed of trademark printing to change from 5 meters per minute to 60 meters per minute. The power requirement is 220V, 50/60 Hz, 3 phases, 4.7KW.

8. Configuration list

Name	Qty.
Ceramic anilox roller 700/min or 280/min	4
Ceramic anilox roller 400/min or 200/min	1
Outer-form printing seat	4
Inner-form printing seat	2
Infrared dryer	4
Heating plate	2
Printing cylinder	1

Optional accessories

Name	Qty
Printing cylinder	Based on reduction rate statistics

Ceramic anilox roller	150/min-750/min
gear	Select with printing cylinder
Flexographic plate material	1.7mm thick

Chapter II Specifications

Maximum bandwidth	200mm
Printing seat	4 outer-form, 2 inner-form
Maximum printing width	180mm
Maximum printing length	350mm
Minimum printing length	200mm
Thickness of material to be printed	0.12mm-0.6mm
Maximum printing speed	330ft/min(100M/min)
Maximum unfolding diameter	400mm
Maximum folding diameter	400mm

Weight and dimensions

Net weight	1200kg
Gross weight	1300kg
Machine dimension	L x W x H: 220 x 85 x 180cm
Packaging dimension	L x W x H: 245 x 148 x x 204cm

Chapter III. Transportation and Installation

1. Transportation

A vehicle of at least 3 tons must be used to carry the main machine in to the place to be installed. (please refer to the reference sketch).

2. Main machine installation

- 1) Dismantle all the plastic bags used for protecting the parts of the machine.
- 2) Adjust the horizontal level of the machine. (According to the reference sketch)

3. Power connection

- 1) All the connection of the circuit must be done by the electric engineer who has received professional training. The company will not be responsible for any damage caused by

the non-electric engineer or by the connection not as indicated by the circuit.

- 2) It is recommended that a copper rod be hammered into the earth 1~2 meters deep as earth wire.

Chapter IV Testing

1. Put the trademark belt on to the axle, and then adjust the tension.
2. Use the transmission cylinder to advance the material on to the surface of the drum in the printing station.
3. Put the paper core on the axle of the folding device, and stick on it the end of the material.
4. Adjust the tension adjustor of the folding tension control, and make sure that the pulling strength of the trademark belt is correct.
5. When the electric power is connected, the indicator of the main power (MAINPOWER) on the control box is lit. (See the reference sketch)
6. First press the warning buzzer (WARNINGBUZZER) and then press the inch switch (INCHING) on the control panel, check if the rotation of the main motor is correct. Select low speed and press the continuous switch (START). When the printer has been running for 5 minutes, check in detail all the devices and gears.

Chapter V Operation explanation

1. Unfolding part

Either the unfolding or the folding part has its own core axle. When the material is put on it, use a fastening fork to fix the material. When the trademark belt is used up, the photoelectric switch (or electric eye) will switch off the printer automatically.

2. Electric operation

- 1) PRC
- 2) Main power indicator (MAIN POWER)
- 3) Warning buzzer (WARNING BUZZER)
- 4) Speed adjusting knob (SPEED CONTROL)
- 5) Inch switch (INCHING)
- 6) Continuous operation knob (START)
- 7) Stop knob (STOP)
- 8) Emergency stop knob (EMERGENCY STOP)

The speed adjusting knob displays the speed of the printer in the form of meters per minute. Whether the printer is in operation or not, the speed adjusting knob can be turned

by hand to change the speed.

The JR-242 flexographic plate trademark printer can finish the printing on the front and the back simultaneously.

3. How to select and install the printing cylinder

The selection of the printing cylinder and gears is based on the formula -1 ($Z=L/3.175$), where

Z = gear number, L = printing length

After calculation, select the gear number in the reduction ratio statistic table. When the gear and the cylinder is decided, proceed with the following steps.

Printing pressure, ink amount and register set

- 1) When the printer is running at the low speed, set the printing pressure and the ink amount from the last color to be printed. Add the pressure slowly first to make the plate cylinder touch the trademark belt.
- 2) Rotate the clearance adjusting device between the anilox roller and the printing plate, and begin putting ink onto the printing plate. At this time, observe the printing trace of the trademark belt on the one hand, and adjust the pressure and the ink amount on the other until a clear printing trace appears and there is no absence of picture.
- 3) Separate the cylinder and the anilox roller, so that the set value of the pressure and ink amount can be achieved by the smallest pressure.
- 4) Finish the setting of ink amount and printing pressure of other groups in the order from the rear to the front.
- 5) When all the setting of every group is finished, adjust the register between color and color, starting from the color on the back.

Register system

First make rough positioning. Press in the printing cylinder. When the error of the printing trace is around 3.5mm, accurate positioning can be made. However, when the error is greater than 3.5mm, the gear must be withdrawn and turned to the necessary position. Press in the printing cylinder again to make the error around 3.5mm. Switch on the machine to make fine adjustment as shown in the picture.

To save material, the plate cylinder for each color should be installed on approximately the same position of the corresponding group. If this is done correctly, the position of the picture to be printed for each color will be very near the register position, which can minimize the times of register adjustment necessary for the setting and reduce the waste of the material to be printed. It is recommended that marks be made on the same position of

each plate cylinder or gear, so that the picture on the printing plate adjusted according to the marks will be very near to the register. When each cylinder is installed on to the printer, the marks can be used for accurate installation (the accuracy is within a gear). The mark on the paper belt should be calibrated with the mark on the cylinder and gear of the first group, and then inch start to move the paper belt to the next color and calibrate with the mark on the next cylinder. This method can be used for rough peripheral calibration so as to reduce the waste of trademark belt and the time for setting.

4. Rules for selecting anilox roller

The line selection of the anilox roller is determined by the originals duplicated on the printer. When the printing plate is designed, the line of the anilox roller is generally between 85 and 200. When words or lines are to be printed, it is usually between 180 and 400. To print dense line area, the minimum ratio is 4 to 1 in selecting anilox roller, i.e., to print 100-line color picture, the minimum line of the anilox roller is 400.

The company standard for the user is 200 lines per inch.

Inking part

There is one principle for the ink duct to be put on the printer, i.e., using the least pressure to finish the ink scraping. When the ink blade is adjusted too tight, the blade will bend under pressure and the ink will become dried and stuck on the back of the ink blade due to friction and the accumulation of heat. When this happens, the dried ink will damage the anilox roller.

When the ink blade is worn out or damaged, it must be replaced.

5. Folding part

The JR-242 flexographic plate trademark printer is equipped with a fastening axle for folding paper drum, the maximum folding trademark belt being 400mm ($\Phi 16$). The folding switch is in the middle of the fastening axle and the folding tension is controlled by the electromagnetic clutch, which keeps the trademark belt at a certain tension.

Chapter VI Lubrication

The printer should be lubricated regularly, the times of which is determined by the frequency of the use.

1. Lubricating point

When beginning to work in the morning, use an oil gun to apply grease on the gear of

the pressure cylinder, however, lubricating oil must be used for the bearings of the cylinder in the printing station. All the bearings must be lubricated with the correct grease or oil. The following lubricating oil and grease are recommended by LABEAAONG Company.

Lubricating oil: light oil (HYSPIN AWS 3Z CASTROL or equivalent)

Grease: grease (SPHEEROL AP3 CASTROL or equivalent)

2. Maintenance

The maintenance of the machine includes regular lubrication and cleaning of the rotation elements of the machine and the cylinder of each printing station. When the printing is finished, be sure to clear the ink of all the anilox rollers in the printing station.

3. Main driving belt

Keep the belt clean and oil free. Make a regular check of the belt to see if it is torn, damaged or loose.

4. Lubrication check

Item	Recommended lubricator	Code
Accessories	SPHEEROL A93 CASTROL or equivalent	1
Gear	HTSPINAWS32 CASTROL or equivalent	2
Bearing sleeve	SHELLRIMULA OIL 30# or equivalent	3

Item	Lubricator	Frequency
Power cylinder gear	2	Regular
Horizontal (left/right) adjusting bearing	1	Per week
For synchronous cylinder bearing and tension checking cylinder bearing, add grease slowly. Because they are cover bearings, too much grease will cause overheating, it will also make the cover leave the bearings quickly so that the latter cannot keep the grease.	1	Semi annually

Chapter VII Maintenance

A clean printer is essential for high productivity. It can also maximize the effective life of the machine. A proper cleaning of the machine will make your work easy and improve its quality. Dirt oil, paper dust or other foreign material on the ink roller, gears,

transmission axle, gliding rail or bearing sleeve will make the work of the operator or the printer difficult.

1. Cylinder

Each time when you begin printing or the printing is finished, the cylinder must be checked carefully to remove any foreign dirt. Paper dust or dirt can be removed with a clean scraper and oil dirt on the surface of the cylinder can be removed with the scraper dipped in the solvent. However, never use any metal tool to clean the cylinder.

2. Gears

All the gears of the ink cylinder, plate cylinder and the greater pressure cylinder must be checked regularly to see if there is dirt to cause any unnecessary tension or friction on the gear and the gear axle (in severe cases, the printing quality can be affected). A better tool for cleaning these gears is short steel brush dipped in the solvent. When the gears have been cleaned, they should be lubricated again to suppress tear and wear, to reduce noise and to make future cleaning easy.

3. Ceramic anilox roller

Each time when the ceramic anilox roller is cleaned, it must be cleaned thoroughly and checked with a high-powered amplifier. The cleaning is better to be done when the ink on the anilox roller is wet. This way, the ink can be effectively stopped from drying in the roller holes. In general, a special chemical detergent is used to soften and dissolve the ink in the roller hole. Method: Place the anilox roller in the detergent for a while and then brush the surface of the roller spirally with a special brush. This is especially effective for the severely blocked anilox roller with dried ink in the roller holes. After cleaning, pure alcohol must be used to treat the surface of the roller, including gears and axle. When the moisture is evaporated, cover the anilox roller with clean paper to prevent dust.

NB. If there is grease on the surface of the roller, clear it away with alcohol immediately.

4. Bearings

The ink roller and the plate cylinder is of high precision; therefore, any foreign body in the bearing or the bearing sleeve will lead to poor installation of the bearing and bearing sleeve and unnecessary tension. Before installing the plate cylinder into the printer, the bearing and the bearing sleeve must be checked and cleaned. After cleaning, thin oil must be applied on the connecting surface.

5. Plate cylinder

To eliminate any possible changes, all the cylinders of the printer must be of high

quality with the tolerance within 0.02. For good printing quality, this is very important, especially the quality of the plate cylinder. The concentricity from the cylinder surface to the bearing is measured by placing the bearing on the V block and checking with a needle-plate display.

Warning: When grease is stuck on the surface of the cylinder, use alcohol to clear it away.

Gear number	Printing length	Plate measurement	Reduction ratio	Gear number	Printing length	Plate measurement	Reduction ratio
110	349.25	339.35	97.16	81	257.175	247.275	96.15
109	346.075	336.175	97.13	80	254.0	244.1	96.10
108	342.9	333	97.11	79	250.825	240.925	96.05
107	339.725	329.825	97.08	78	247.65	237.75	96.00
106	336.55	326.65	97.05	77	244.475	234.575	95.95
105	333.375	323.475	97.03	76	241.3	231.4	95.89
104	330.2	320.3	97.00	75	238.125	228.225	95.84
103	327.025	317.125	96.97	74	234.95	225.05	95.78
102	323.85	313.95	96.94	73	231.775	221.875	95.72
101	320.675	310.775	96.91	72	228.6	218.7	95.66
100	317.5	307.6	96.88	71	225.425	215.525	95.60
99	314.325	304.425	96.85	70	222.25	212.35	95.54
98	311.15	301.25	96.81	69	219.075	209.175	95.48
97	307.975	298.075	96.78	68	215.9	206	95.41
96	304.8	294.9	96.75	67	212.725	202.825	95.34
95	301.625	291.725	96.71	66	209.55	199.65	95.27
94	298.45	288.55	96.68	65	206.375	196.475	95.20
92	292.1	282.2	96.61	64	203.2	193.3	95.12
91	288.925	279.025	96.57	63	200.025	190.125	95.05
89	282.575	272.675	96.49	62	196.85	186.95	94.97
88	279.4	269.5	96.45	61	193.675	183.775	94.88
87	276.225	266.325	96.41	60	190.5	180.6	94.80
86	273.05	263.15	96.37				
85	269.875	259.975	96.33	JR-242 printing plate reduction ratio statistic			

84	266.7	256.8	96.28	table
83	263.525	253.625	96.24	Rui'an Jingda Printing Machinery Company, Ltd.
82	260.35	250.45	96.19	

Accessory list of JR-242 flexographic plate trademark printer

No.	Name	Qty.
1	Spanner	1 set
2	Ink shovel	4
3	Plate adjusting seat	1
4	Operating blade	1 package
5	Operating blade handle	1
7	Rubber hammer	1

