

Reciprocating Auto-Spray Production Line (PU paint)

RSP-2800PU



➤ Description

The whole line includes loading machine, Dust collect machine, automatic reciprocating paint Spray machine, unloading machine.

Application: The line is suitable for custom-made furniture, wooden doors (door frame/decorative frame), cabinets and stickers, Wood- Plastic Composites panels, PVC veneers and other plate-type workpieces. Suitable for PU paint. The machine makes spraying process without manual intervention, precise control, smooth spraying, saving paint, rapid drying and high production efficiency.

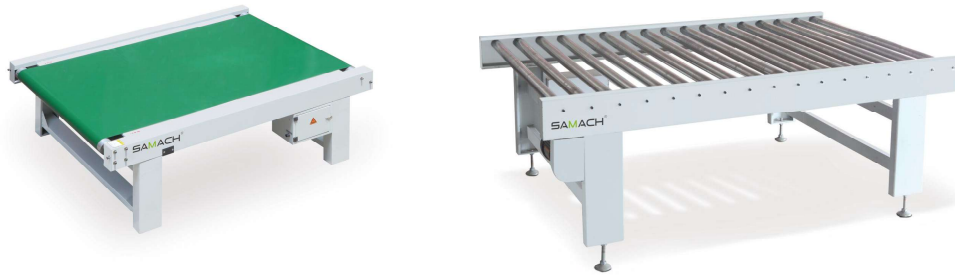
➤ Spraying Steps

Item	1.Belt conveyor	2.Dust collect machine	3.Reciprocating Spray machine	4.Roller conveyor
Length	2.5M	2M	5.4M	2.5M
Power	0.75KW	2.5KW	15KW	0.75KW
Weight	300KG	1000KG	4500KG	380KG
Dia. of wire	4*1.5mm ²	4*2.5mm ²	3*4mm ² +1*6mm ² +1*4mm ²	4*1.5mm ²
Fan flow	/	/	9000-12000m ³ /h	/
Air pressure	/	Pressure>8KG, flow rate≤1m ³ /min	Pressure>8KG, flow rate≤1m ³ /min	/

PU paint spraying process: The workpiece is automatically loaded or manually loaded → dust removal in Dust collect machine → paint spraying → unloaded and to the next production process.

➤ Details:

I. Conveyor for loading/unloading.



1. The conveyor system of entire line uses a smooth and horizontal design, so that after the workpiece is sprayed, it can reduce the impact on the paint drying when moving or placed. Assembly line design reduces labor and makes the logistics configuration of the factory more clear and concise, which makes the configuration of the whole line more reasonable and scientific also.
2. Conveyor belt is made of non-slip fiber or stainless steel roller.
3. There are automatic corrective device and track adjusters design in conveyor, and ensure the smooth conveyance of the workpiece.
4. Frequency governor make the conveyor to be provided with infinitely variable speeds.

Item	Technique parameter
Load	Belt conveyor<100KG roller conveyor<100KG
Working height	900±20mm
Conveying speed	2-6m/min
Conveyor motor power	0.75KW
Total installed power	0.75KW
Control voltage	DC/24V
Total weight of the machine	Belt conveyor300KG/ roller conveyor380KG
Operating side	Right hand side

Item	Brand
Electrical components	Schneider Electric
Frequency converter	Inovance
Control button	Domestic brands
Conveyor belt	Chuangnai 1300*5115(other size is options)
Gear reducer	Keyu
Deep groove ball bearing	Harbin/ZWZ

II. Dust collect machine



1. This machine is used for the dust removal of workpiece surface before primer spraying.
1. Conveyor belt is made of non-slip fiber.
2. Conveyor belt is made of non-slip fiber or stainless steel roller.
3. There are automatic corrective device and track adjusters design in conveyor, and ensure the smooth conveyance of the workpiece.
4. Frequency governor make the conveyor to be provided with infinitely variable speeds.
5. Brush roller is high-strength nylon wire / sisal, anti-wear, long service life.
6. Efficient dust hood is connected to the pipe and a set of suction tubes.
7. The workpiece is controlled by the rubber pressure roller to prevent the workpiece from being shaken during brushing.

Item	Technique parameter
Vacuuming air volume	6000m ³ /h
Vacuuming wind speed	20-25m/s
Brush motor power	1.5KW
Conveyor motor power	0.75KW
Compressor fan	0.25KW
Total installed power	2.5KW
Control voltage	DC/220V
Total weight of the machine	1000KG
Dimensions	2×2X1.8 (M)
Operating side	right hand side

Item	Brand
Electrical components	Schneider Electric
Frequency converter	Inovance
Control button	Domestic brands
Conveyor belt	Chuangnai(1300*5110)
Gear reducer	Keyu
Pneumatic actuator	AIRTAG
Deep groove ball bearing	Harbin/ZWZ

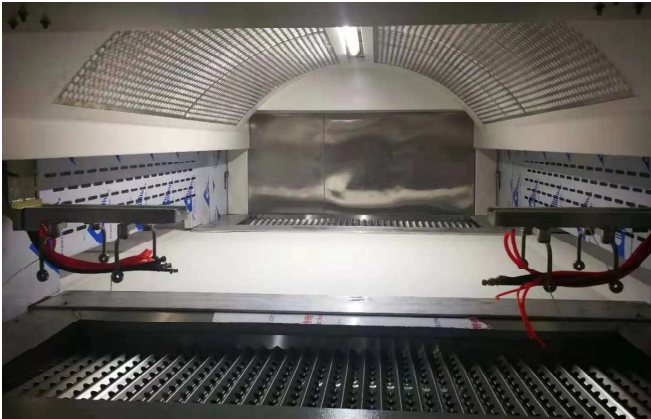
III. Spray machine



Main Spray machine include six parts as below: A, conveyor system; B, spraying system; C, paint reclaiming system; D, Cleaning system; E, paint supply system.

A. Conveyor system

1. **High Modulus Graphite (HMG)** is the main material in conveyor belt.



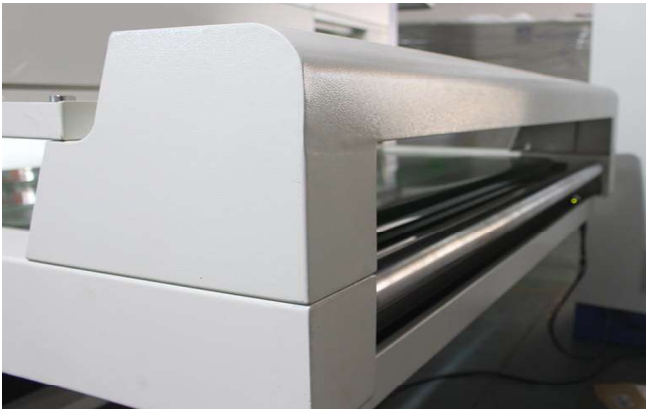
2. The special technology makes joint of the belt keeping the same strength with other parts in the conveyor.
3. There are automatic corrective device and track adjusters design in conveyor.



4. Frequency governor make the conveyor to be provided with infinitely variable speeds
5. The long-belt design can reduce the time of the paint stayed in belt.

B. Spraying system.

1. **Cikenn light curtain from America** is installed at feeding throat of the main Spray machine. It can scan the shape and size of workpiece accurately. The result of scanning will be transferred to PLC, which will control spraying gun to open or close. It can save the paint.



2. To make sure spraying accuracy, oscillation of the two spray-gun arms is powered by servo motor from Inovance, which can offer the accurate controlling with separate ways and supports. 2 positioning wheels and 2 adjustable wheels compose one track adjusters system for timing belt. It's easily to change the tightness of timing belt by control adjustable wheels. The adjustment of tightness is automatic working, when the length of timing belt is changed by the temperature or external factor. Track adjusters system makes the timing belt start and brake running smooth and steady. It also can extend the life of timing belt and be good for servo motor and speed reducer.



3. Explosion-proof lamps are used in spraying booth. It's safe and save electricity.



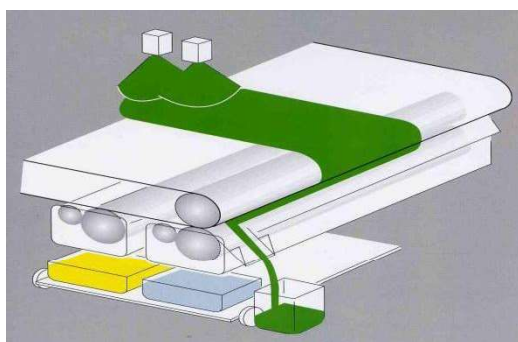
4. Rational aerodynamic configuration makes the paint fog flow optimized in spraying area, although the conveyor speed is fast.

5. Machine manager can set the machine parameter and know about the machine running information directly by touch screen.

6. The Spray machine can be used in primer and finish paint of bespoke furniture, interior door, kitchen door, Wood- Plastic Composites panels, PVC skin for PU paint

C. Paint reclaiming system

1. The paint drop on the belt surface will be collected automatically in the tank after scraped by the scraper. If the paint chemical property isn't changed, the paint can be used again.



2. There are 1 unit reverse turn roller and tank for paint collection. There are 3 rollers in cleaning system for belt clean and wipe dry. To make this part maintenance convenient, all of these parts are installed in one track-dolly. The paint is recycled by extruded at first. The belt will keep parallel with cleaning mechanism, which makes the pressure in everywhere of their junction same. Then the residual paint is recycled by scraper.



D. Cleaning system

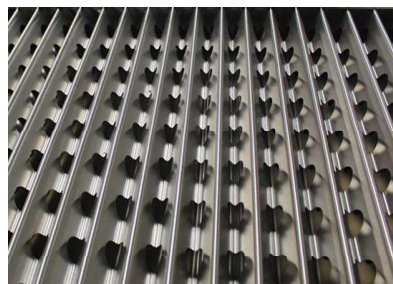
1. The cleaning of belt. The belt after recycled paint will be soaked in thinner first, at the same time, the residual paint will be dissolved in thinner, and then the textile roller will make the belt dry.

2. The cleaning of guns. Only one operator can finish the cleaning, less thinner and short time.



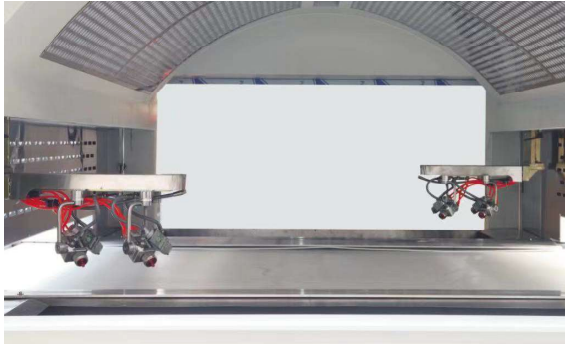
3. The cleaning of the machine booth. Separate air compression control unit and double filters make sure the air enter spraying booth is clean and fresh. The waste paint fog will across two filters which installed at the outlet and tank. Each time of fog across the filter, the paint will be cleaned.

4. The pipe of air outlet can be installed with additional filter by client, in order to remove residual paint in the air.



E. Paint supply system

1. **The stander machine paint supply system equip with 8 high press spraying guns and 1 high pressure plunger pump with Wagner brand from Germany. 8 guns separate into two units.** Each gun angle can be adjusted for spraying. Paint pipe circulation loop keep the gun pressure steady. Pressure regulating valve controls the paint flow.



2. According to different work piece height, gun jigs can be adjusted by operator.
3. Mixed air spray gun has outstanding performance in atomizing, that's why this kind of gun can save a lot of paint and get the best painting quality.
4. Thinner is cyclical used in tray of track-dolly.

No.	Item	Technique parameter	Remark
1	Working width	<1300	If the spray edges, the max working width is 1000mm
2	Working length	>350mm	
3	Working height	3-50mm	
4	Workbench height	900±20mm	
5	Conveyor speed	2-5m/min	
Power details: (KW)			
1	Conveyor	1.5	
2	Main Spray machine	6.55	
3	Cleaning system	0.75	
4	Air outlet	4	
5	Air inlet	2.2	2.2*1
6	Total power	15	
Machine basic parameter			
1	Power type	3P AC/380V/50HZ	
2	Control voltage	DC/24V	
3	Air compressor	50M3/H	
4	Air outlet consumption	9000-12000m3/H	
5	Machine weight	4200KG	
6	Main Spray machine external dimension	5000*4700*2800mm	
7	The color of the machine	Light gray	
8	Fore side	Right	
Others			
1	Manufacture Standard	GB12557-2000	
2	Air consumption of the gun	Gun: 3-7.5M3/H*8 Pump:	Mixed air gun

			42M3/H	
			Gun: 20-30M3/H*8 Pump: 0.5M3/H	Air gun
		3 main spaying machine	22KW (output: 3.5M3/MIN)	

No.	Item	Name	QTY	Brand	Origin	Remark
1	Conveyor system	Conveyor belt	1	SIEGLING	Germany	φ 4400*1670*2
			1	Hantang	China	Optional
		Servo motor	1	Inovance	China	MHMD
		Frequency transformer	1	Panasonic	Japan	
2	Spraying system	PLC	1	Panasonic	Japan	
		Industrial Computer System	1	Siemens	Germany	
			1	Weilun	China	Optional-11 inch
			1	Weilun	China	Optional-15 inch
		Electrical element	1	Schneider	France	
		Motor	1	Keyu/Siemens	China/German	
		Cable	1	Helukabel	Germany	
		Scanner	1	Cikenn	China	
		Rotary encoder	1	Rongde	China	26C1000BM2M
		Slide guide	2	TBI	Taiwan	KML2O
		Timing Belt	2	Sengduoli	Italy	6960mm
		Servo motor	1	Inovance	China	CH32-2.2KW
		Reducer		Keyu		
		Plastic trace chain	1	Banner	China	35R150
		Lubrication pump	1	Yujing	China	Y-8A
		Axle bearing	8	Harbin	China	
3	Paint reclaiming system	Paint reclaiming system	1	Houxing	China	Remark
4	Cleaning system	Belt with cleaning	1	Houxing	China	
		Air inlet	1	Houxing	China	
		Fan of air inlet	1	Chaoya	China	2.2KW
		Air outlet	1	Houxing	China	
		Fan of air outlet	1	Popula	China	
		Filter	1	Houxing	China	
		Filter tank	1	Houxing	China	
		Pipe	1	Houxing	China	5*0.5*0.35m
		Pump	1	Mingli	China	HF-5AL-1.5KW

5	Paint supply system	High pressure	8	Wagner	Germany	13150 Air mixed
		Spraying gun		Iwata	Japan	Optional
		Plunger Pump	1	Wagner	Germany	3570
		Diaphragm pump	2	Prona	Taiwan	Optional
		Air source treatment	1	Airtac	Taiwan	
		Paint pipe	2	Nylon tubing	China	6.5*10

