

# ATMALINE RR5060/S

## Fully Automatic Roll-To-Roll Screen Printing Line



- "dryer" is optional
- above layout is for view reference only; all line configuration up to actual specification schemed for a real project which often comes varying.



### Awards won

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## Application:

This line is suitable for various flexible roll materials, such as membrane switches, bio-medical test strips, heat transfers, labels, stickers ... PET/PC plastic films, papers ... to be screen-printed with graphs/texts, functional deposit layers...

## Features:

A fully automatic screen printing line: unwind-feeding(with web joint table) → optical registration (optional) → printing → drying (optional, IR+hot air, horizontal routing) → rewind-collecting, for in-line fully automatic continuous production.

## Characteristics :

- ◆ **Unwind / Rewind:** uses air shafts, assures concentricity and non-slip of material roll (stable rolling), fast roll loading/unloading, supplied with choice 3" air shafts (standard) or with 6" air shaft sleeve (optional);
- ◆ **Web flow:** servo-driven rolling, working with web tracking system; servo tensioning controlled by air cylinder supported floating weight roller + servo driven roller;
- ◆ **Screen printer:** adopts ATMA 2-post motorized "PD" version module, integrating all exquisite function sections:
  - Printer section: digital-controlled motor driven 2-post lift, to: print level(off-contact, digitally set) / standby level / cleaning level.
  - Substrate base table section: with dynamical On/Off and volume-adjustable vacuum (to fix material) / air blow-back (air-borne web pass without scratch);
  - Screen section: adjustments: holder arm positioning / air-locking, pneumatic screen holder levels, holder arms(screen) leveling, supplementary positioning by screws, screen frame XYY manual fine-adjustments + further YY servo-driven digital tuning provided by Automatic Alignment system, pneumatic gradual peel-up of screen during print stroke (to prevent sticking, stroke/ speed adjustable; servo-driven type is optional – digital-set stroke length & start/stop points, automatically averaged to print stroke)
  - Squeegee section: squeegee / flood coater pneumatic lift (clear off screen), servo-driven left-right stroke(print / flood coating), digital-set stroke start/stop points & speed; Squeegee / flood coater adjustments: manual mounting positioning, set-down level(depths), leveling(print evenness), inclination angle(deposit thickness), skew angle(to overcome print skips at corners), up/down speeds, pneumatic constant print pressure (digital-set type as optional)...
- ◆ **Printing / flood coating:** servo-driven, stroke / speed digital-controlled, solid drive torque, stable run over entire stroke, fault free.
- ◆ **Printing / flood coating pressure:** standard with manual knob + pressure gauge constant pressure control (pressure 3~62 kgf); optional digital-controlled constant pressure systems may be chosen, individually digital-set from HMI.
- ◆ **Optical automatic screen-substrate alignment:** with hole punching device and optical hole detection sensors, working with servo-driven screen frame move auto-alignment system, achieving precisely registered printing.
- ◆ **High flatness table:** made of thick aluminum alloy board, fine smooth processed and hard anodized(scratch-resistant), achieving flatness at  $\pm 0.02\text{mm}$ , realizes fine line/dot printing.



- ◆ **Control / operation system:** high-level industrial computer integrated multiple controls, color LCD touch-operated HMI, provides multiple function parameter setting and immediate operation/monitoring, convenient for operation, complies to faultless demands in digitization, standardization and humanization.
- ◆ **Safety protection:** with error diagnose/alert system, safety restoration, emergency-stop, beacon..., considerate in safety protection.
- ◆ **post-print inspection station:** manually movable x5 magnifier lens with light + bottom back-light panel, for operator to inspect printing quality.
- ◆ **Various dryer type for choice (optional):** according to material characteristics(thermal/tension durability), ink's drying characteristics(energy, speed), and productivity demand(type, section length), normal types:
  - IR + Hot Air drying: horizontal conveying type (with carrier belt, or pull-through type)  
Up/down routing type
  - UV during: horizontal pull-through type(other types)

## Specification

### 1. Screen Printer (with unwinder)

Item	Individual model	AT-RR5060/S Screen Printing Machine (with Unwinder)
01	Machine dimension	L 4430 x W 1400 x H 2000 mm
02	Machine weight	1660 kgs
03	Compressed air source	5 ~ 7 kg/cm <sup>2</sup>
04	Electric power	3 phase / 380 V / 50/60 Hz
05	Air consumption	64 L/min
06	Working table height	1000+30 mm
07	Working table size	580 x 780 mm
08	Vacuum area	490 x 740 mm
09	Max. printing area	500 x 600 mm
10	Min. printing area	350 x 400 mm
11	Max screen frame O/D size	800 x 1000 mm
12	Min. screen frame O/D size	600 x 800 mm
13	Screen frame height	25 ~ 40 mm
14	Screen up/down	servo motor + brake + reduction gearbox + ball screw
15	Screen peel-off distance	max : 20 mm
16	Screen fine adjustment X/YY	±10 mm / ±10 mm (added optional digital-servo driven type)
17	Max. material roll width	520 mm
18	Min. material roll width	350 mm
19	Max. capacity (full speed & strokes)	17 pcs/min
20	Squeegee travel speed	50 ~ 1070 mm/sec
21	Squeegee inclination angle	20 ± 10°
22	Flood coater inclination angle	45 ± 5°
23	Print pressure	3 ~ 62 Kgs
24	Web flow direction	left to right
25	Material roll supply	by air shaft unwind

Item	Individual model	AT-RR5060/S Screen Printing Machine (with Unwinder)
26	Air shaft spec.	3" x 2 (1 each for unwind and protective film rewind) (6" shaft sleeve as <b>optional</b> )
27	Shaft drive	by servo motor
28	Unwind web edge tracking	by web guide
29	Tracking detection range	± 10 mm
30	Tension control	air cylinder supported weight roller + servo tension control
31	Tension adj. range	0.5 ~ 3.0 kgf
32	Web speed	30 ~ 300 mm/sec
33	Cutting/joint table	with
34	Anti-static device( <b>optional</b> )	anti-static bar (L 600mm)
35	Dust cleaning device ( <b>optional</b> )	contact cleaning roller (L 533mm) + dust-collection adhesive roll
36	Buffer section	servo motor driven
37	Operation interface	Proface 7" HMI, for parameter setting + 100 recipes

## 2. IR + Hot Air Circulation Dryer (optional)

Item	Individual model	AT-TIO5050 IR + Hot Air Circulation Dryer
01	Machine dimension	L 6730 × W 1620 × H 1420 mm (heating length: 5000 mm)
02	Machine weight	2424 kgs
03	Electric power	3 phase / 380 V / 60 Hz
04	Power consumption	50 kw
05	Conveyor belt type	PTFE net belt (width 600 mm)
06	Carried web width	350 ~ 520 mm
07	Conveyor drive	Induction motor + reduction gearbox driving rubber-wrapped rollers
08	Conveyor height	1000+30 mm
09	Conveyor direction	Left to right
10	Conveyor speed	Line speed: 2 ~ 18 m/min
11	Heating	by IR + hot air circulation
12	Heating chamber	5 zones (each 1 m)
13	Conveyor length	equipment length 6.7 m
14	Circulation air	internal top-down hot air circulation
15	Body material	Inside SUS430 outside SS41 painted
16	Temperature control	IR - SCR Hot air: SSR
17	Temperature range	Working temp 80 ~ 120 °C max. 150 °C
18	Circulation system	7.5" fan-blower
19	Temperature evenness	within set temp ± 3 %
20	Operation interface	Proface 7" touch-operated HMI, 100 recipes
21	Air exhaust	4" exhaust outlet x 3 6" exhaust outlet x 1
22	Protection measures	1. over-temp setting on temperature controller, 10°C over set heaters are shut off. 2. error display on HMI, beacon + buzzer alert, emergency-stop buttons.

### 3. Rewinder

Item	Individual model	AT-RW5050 Rewinder yer
01	Machine dimension	L 2000 × W 1267 × H 1510 mm
02	Machine weight	500 kgs
03	Compressed air pressure	5~7 kg/cm <sup>2</sup>
04	Electric power	3 phase / 220 V / 60 Hz
05	Conveyor direction	left to right
06	Air shaft spec.	3" x 2 (1 each for rewind and protective film unwind) (6" shaft sleeve as <b>optional</b> )
07	Adding protective film roll ( <b>optional</b> )	3" air shaft (6" shaft sleeve as <b>optional</b> )
08	Material roll width	350 ~ 520 mm
09	Shaft drive	90° vacuum roller (driven by servo motor)
10	Vacuum roller diameter	∅ 164 mm
11	Web speed	30 ~ 300 mm/sec
12	Vacuum source	ring-blower
13	Rewind web edge tracking	web guide + structural EPC ± 10 mm
14	Tensioning control	by servo motor
15	Tension adj. range	2 ~ 5 kg
16	Operation interface	Proface 7" touch-operated HMI, parameter setting
17	Anti-static device( <b>optional</b> )	anti-static bar (L 600 mm)
18	Safety measures	emergency-stop button

View drawing (ATMALINE RR5060/S)

