SOLVENT INK VS UV INK

APL UV INTERDECK

DOUBLE STATION UV MACHINE FOR DRIP OFF (HYBRID UV)

FULLY AUTOMATIC HIGH SPEED ROLLER COATING AND CURING MACHINE

DIGI UV SYSTEM

FULLY AUTOMATIC UV COATING & CURING MACHINE (SPOT & FULL)

ROLLER COATING MACHINE & ANILOX COATING ATTACHMENT

LED UV SYSTEMS

FULLY AUTOMATIC HIGH SPEED ROLLER COATING AND CURING MACHINE

UV CURING SYSTEM

COMPANY PROFILE
APL Machinery is India’s leading company engaged in manufacturing of full range of UV coating and curing system and screen printing machines for industries. Headquartered in Faridabad, the company caters to domestic and international market effectively through established network of sales & services offices and channel partners all over the world.

It was around 1960 when Paul group started “Printing business” in India. Followed by manufacturing of screen printing machines in 1995. Later branched out in the production UV Curing (of coating by ultraviolet radiation) systems and other industry-related products. With consistent efforts and lot of hard work put together over the years, APL Machinery created a name for itself, both in India and global market.

APL Machinery is also honored with ‘Star Award’ in Gold category Paris 2001 from the 18th International World Quality Commitment’ in printing industry convention held in Europe.

Keeping pace with the changing environment, technology and needs of the clients, the company’s Research and Development unit is constantly focusing on developing new products and improving the existing ones.
The customer is supreme quality first
Continue to innovation sustainable management

- To the quality strives for the survival
- Quality is the lifeblood of an enterprise
- To seek business integrity
- Take the good faith as the most basic principle
- Service for development
- With good service to establish cooperative relations for a long time
In order to better understand the curing process, you have to be aware of difference between drying of conventional inks and varnishes & uv cured substances.

Conventional inks are either oil based, or contain water or solvents. Oil based ink dry through oxidation of oil containing binding agents. Water or solvent based ink dry through evaporation of volatile solvents, alcohol, water, etc. The drying process is accelerated by the application of heat, in form of infrared radiation but solvent residue requires several hours to evaporate completely. The ink fell shrink, the surface loose gloss due to irregularities in the surface.

UV cured inks & varnishes, on the other hand are solidified by means of the photochemical process which is also known as cross linking. This polymerization is triggered by the action of UV energy on ink or varnish. During this process the photo initiators containing the ink or varnish are converted to free radicals. Throughout the UV curing process, these radicals are insensibly attempting to combine with other elements. During this cross linking process, pigments and other additives are bond in the polymers chain. In the end, during the course of UV curing all elements in ink and varnish are moves to form strong polymer compound. Only when cross linking is complete, the UV or varnish is fully cured and forms a smooth uniform surface. Unlike Conventional inks, UV inks do not contain elements that oxidize or evaporates, on the contrary all the constituents of the UV ink are directly involved in the polymerization process. In this way the UV ink is retained a 100% dried coating. From an environmental point of view therefore UV curing is un-doubtly one of most eco-friendly technologies.
UV Interdeck from the name itself clarifies that it is a UV system between the two decks or 2 printing stations. It is a compact and efficient UV curing system to print on all type of substrates.

Features

- Instant curing at higher speed of the machine.
- Optically simulated to focus maximum UV energy on the curing area.
- Smart Thermo dynamical control for the system.
- Step less Intensity control of the system.
- Intensity of lamp is synchronised with speed of the press.
- Automatic positioned controlled shutter system.
- Automated hibernation system.
- Single conector for UV, Pneumatics and Other Automation measures
- Graphical control panel.
- Fast interchangeability of cassettes between the stations.
- Multiple safety measures integrated for your press to protect your press from fire hazard.
Advantages of APL UV systems

• 15 years of manufacturing experience in UV equipments
• Designed and Manufactured in India
• Customised systems can easily be manufactured
• Spare parts availability 24x7
• 1 Year Product warranty
• Regional Offices in all 4 Zones of the India
• Service Team availability within 48 Hours
• Expert advice and support on applications of UV
• Can be easily installed in all kinds of Printing machines

Applications

• Curing of UV inks on different substrate (absorbent, non-absorbent, metalized)
• High deposit inks curing is possible
• Increases the Productivity of the machine
• UV coating gets online and reduces the number of processes to do UV for the job.
• No Powder or water base coating required for the protection of the colour printed.
• UV effects like GLOSS, MATT, TEXTURE (Drip-off/Hybrid) can be done online.

End of Press UV Interdeck

UV light ray diagram
Interdeck shutter system
### EPS Features

<table>
<thead>
<tr>
<th>EPS Features</th>
<th>EPS Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-frequency (8~16KHz) Square Wave</td>
<td>Increased UV Intensity output (20% - 30%)</td>
</tr>
<tr>
<td></td>
<td>Reduces the Dipole overheating</td>
</tr>
<tr>
<td></td>
<td>Can work at FLASH mode to save energy</td>
</tr>
<tr>
<td>Tunnelling System</td>
<td>Lamp life is increased</td>
</tr>
<tr>
<td></td>
<td>Warm-up time of the lamp is less</td>
</tr>
<tr>
<td>Micro-process Dynamic Control</td>
<td>Best efficiency (&gt;95%) of the Lamp over the time</td>
</tr>
<tr>
<td></td>
<td>Find the best working point of current and voltage</td>
</tr>
<tr>
<td></td>
<td>Control and recovery of the external events</td>
</tr>
<tr>
<td>High-Speed and Soft Switching IGBT</td>
<td>Automated fast response</td>
</tr>
<tr>
<td></td>
<td>Requires less than 1 second to switch from stand mode to full intensity.</td>
</tr>
<tr>
<td>True Power Regulator with Magnitude Control</td>
<td>Fully Stepless regulation</td>
</tr>
<tr>
<td></td>
<td>Minimal power is 5% for standby mode. No special algorithm from customer is required</td>
</tr>
<tr>
<td>Phase Balance</td>
<td>Power factor is 96%</td>
</tr>
<tr>
<td></td>
<td>No inrush current Cos ∫ = 1</td>
</tr>
<tr>
<td>Self-diagnostics and Protection</td>
<td>Self-diagnostics</td>
</tr>
<tr>
<td></td>
<td>Protection technology</td>
</tr>
<tr>
<td>Excellent Compact Design</td>
<td>Weight is 5 times less</td>
</tr>
<tr>
<td></td>
<td>Volume is 8 times less</td>
</tr>
<tr>
<td></td>
<td>Easy to setup</td>
</tr>
</tbody>
</table>

**Weight is 5 times less**

**Volume is 8 times less**

**Easy to setup**
The P3 UV is the third generation of AMS’s award-winning and patented Peak UV Curing System — representing an entirely new class of standard UV curing. An advanced modular system that is flexible, reliable and easy.

- The P3 UV™ System was designed to eradicate downtime and outlast everything in its class — critical requirements for modern printing profitability.
- P3’s modular components can be changed, checked, or cleaned quickly and easily, and without tools. UV lamps slide into position with a guaranteed plug-and-play locking mechanism.
- Each module tracks its lamp hours automatically.
- P3 E-Flex™ 100% electronic ballasts can be specified on most systems providing an ultra-efficient, high frequency waveform that eliminates dark-out phases.
- The all-new P3 Titanium™ edition allows hybrid compatibility with both traditional UV inks and coatings, as well as with a new generation of High Wavelength UV (HUW) products, that reduce the amount of energy required for curing and eliminate the need for multiple UV units.
- The mechanical and electrical integrity of P3 are proven not only through stringent UL and CE certifications, but through thousands of hours of testing and faultless operation in real world conditions.
- P3 was engineered as a single core technology to work seamlessly with all leading OEM equipment, including the multi-color sheet-fed offset presses from Heidelberg, KBA, Komori, manroland, Mitsubishi, Ryobi, Akiyama, Sakurai and others, as well as Web Offset and Flexo presses from most manufacturers.
The AMS XP Series LED UV™ is the world’s leading UV LED technology for sheetfed offset printing and can be installed on just about any machine.

AMS XP SERIES LED BENEFITS
AMS LED systems are designed to meet the highest production speeds and most intense drying applications in sheetfed, perfecting, web, folding carton packaging and plastics printing:

- Huge power saving
- Only 1 LED Cassette Required for 4 colour printing
- No warm-up/cooling time (Instant On/Off)
- No Heat generation/cold UV
- Lamp Life more then 20,000 hours.
- No top coating required for protection of printing
- Machine can run on full speed
- High fidelity and gloss in printing
- No smell
- Curing upto 400% incoverage
- Compatible with all presses
- Incredibly Fast ROI

LED UV BENEFITS FOR OFFSET PRINTERS
- 100% Electronic
- Ozone Free
- SMART-UV | C-LED (Option for UV Coatings)
- 100% Electronic Ozone Free
A World class product from APL. This machine can be used as Offline coater for UV & Aqueous coating as well as for primer coating. It can do full and spot UV varnish on thick & thin paper at the speed of 6000 or 10,000 sheets per hour. Conventional varnish or water based varnish can also be run on this machine.

This machine includes all technical solutions for easy operation and for increasing productivity. The machine is compact and solid built on a strong C.I. frame. It is reliable at any working speed. This machine is equipped with high grade hardened grounded gears for its smooth operation for years. The UV curing lamps used in it are one of the best in the world. It consists of total vacuum bed for smooth conveying of paper and board, efficient cooling system for lamps. IR lamps are also used for water base varnish or smoothness of UV lacquer.

FULLY AUTOMATIC UV COATING & CURING MACHINE (SPOT & FULL)

- Delivery to accommodate a conveyor for hot air/U.V. dryers.
- Pneumatically actuated Anilox roller and impression cylinder.
- Quick change Anilox roller.
- Doctor blade assembly with doctor blade angle adjustment.
- Plate clamps suitable for clamping blankets or photopolymer plates.
- Full PLC control with digital touch screen human machine interface.
- Curing speed of up to 10000 speed per hour.
- Precise and Consistent coating weight with every job.

High Speed Model

| Technical Specification: |
| Model | APL UV 2232 | APL UV 3048 |
| Minimum Sheet Size | 211 mm x 400 mm | 305 mm x 508 mm |
| Maximum Sheet Size | 390 mm x 400 mm | 390 mm x 508 mm |
| Max. Coating Area | 340 mm x 813 mm | 508 mm x 1016 mm |
| Max. Speed | 10000 sheets per hour | 10000 sheets per hour |
| Plate Size | 819 mm x 400 mm | 995 mm x 1016 mm |
| Pin height of Feeder | 930 mm | 1173 mm |
| Pin height of Delivery | 930 mm | 930 mm |
| Plate Cylinder Diameter | 350 mm (with blanket) | 350 mm (with blanket) |
| Imp. Cylinder Diameter | 702 mm | 702 mm |
| Spoke Requirement | L-68 x W-200 x H-3000 | L-115 x W-353 x H-1000 |
| Machine Dimensions | L-1020 x W-1529 x H-3000 | L-1584 x W-2143 x H-2409 |
| Paper Thickness | 52 to 400 gsm | 80 to 400 gsm |
| Power (Dryer) | 4 KW | 6.2 KW |
| Power (UV Dryer) | 9 KW (Single Lamp) | 12 KW (Single Lamp) |
| Weight | 9 Ton | 7 Ton |

Features

- Precise registration at high speeds using a precision adjustable side and front lay.
- Powerful stream feeder to handle stocks from 80 G.S.M to 450 G.S.M.
- User adjustable Double Sheet Detector.
- Maintenance Free Varnish replenishment pump.
- 2/3 UV Lamps of 300W/inch as optional.
- Swing Arm Gripper for high speed & accurate registration.
- Micro adjustable front lays for easy and precise registration on the run.
- Adjustable side lays are given for front and reverse jobs registration.
APL Double station coating machine is basically designed for offline drip off coating on printed substrate. This machine is a combination of offset unit and flexo unit for perfect texture. For semi curing first unit coating one water cool Interdeck UV cassette is between both station. End of delivery apart from UV lamp there were IR with hot air unit is also there which make possible to coat Aqueous base coating in this machine. In this machine possible to coat drip-off, full coating, spot coating and spot not coating (UV and aqueous).

### Technical Specification

<table>
<thead>
<tr>
<th>Model</th>
<th>APL UV 2x2030</th>
<th>APL UV 2x2840</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Sheet size</td>
<td>530 x 785 mm</td>
<td>725 x 1016 mm</td>
</tr>
<tr>
<td>Coating Area</td>
<td>500 x 750 mm</td>
<td>700 x 1000 mm</td>
</tr>
<tr>
<td>Paper weight</td>
<td>100 to 400 gsm</td>
<td>100 to 400 gsm</td>
</tr>
<tr>
<td>Power</td>
<td>35 KW</td>
<td>50 KW</td>
</tr>
<tr>
<td>Extra Power for IR Lamp</td>
<td>12 KW</td>
<td>16 KW</td>
</tr>
<tr>
<td>Speed</td>
<td>6000 lms per hr</td>
<td>6000 lms per hr</td>
</tr>
</tbody>
</table>

### Applications

<table>
<thead>
<tr>
<th>1st Station</th>
<th>Interduct</th>
<th>2nd Station</th>
<th>Interduct</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV Primer</td>
<td>UV Lamp</td>
<td>UV Full or Spot</td>
<td>UV Lamps</td>
</tr>
<tr>
<td>UV Texture</td>
<td>UV Lamp</td>
<td>UV Spot</td>
<td>UV Lamps</td>
</tr>
<tr>
<td>UV Printing</td>
<td>UV Lamp</td>
<td>UV Spot or Full</td>
<td>UV Lamps</td>
</tr>
<tr>
<td>(on metalized substrates)</td>
<td>UV Lamp</td>
<td>Aqueous coating</td>
<td>IR Lamps</td>
</tr>
</tbody>
</table>
FULLY AUTOMATIC HIGH SPEED ROLLER COATER AND CURER

SPECIFICATIONS

- High Pile Feeder with 4 Picking & 4 Forwarding Suckers
- Max Speed: 5000 SPM
- Heavy Duty Roller Coater for UV Aquas and Blister Coatings
- Air Knife for Below 450 GSM and Above 200 GSM (But Not Applicable on Blister Coating)
- Blister Coating is Possible Above 450 GSM
- Digital Coating Adjustment Control System
- IR+ Hot Air for Aquas & UV Coatings
- UV Lamp of 300W/Inch with High Quality Reflector for UV Coatings
- Automatic Stacker with Sheet Counter
- Easy to Operate and Quick Make Ready Time
- Serrate Tanks for Aquas and UV
- In Case of Power Failure UV Hood Will Open Automatically
- Teflon Coated Fibre Mesh Belt
- Throughout Vacuum on Conveyor

Sizes Available
- 20" x 30"
- 30" x 40"
- 42" x 42"
DIGI UV SYSTEM

DIGI UV Machine is a dedicated machine for UV Coating and Curing on Digital prints. Digital printer using HP, Canon, Xerox, Kodak, Ricoh or any other digital press can make the best use of this machine for UV. This machine is very good for making Digital Photo Albums. Offset and screen PRINTERS can also use this machine for full coating UV Jobs.

Features:
- Feather touch display (Next generation UV controller).
- Machine Speed MPM (Meter per minute).
- Digital Current Display.
- Digital sheet counter.
- UV intensity management (25%, 50%, 75%, 100%)/ Hibernation mode.
- Auto Lamp off on lifting of Hood
- Efficient thermally controlled system.
- Lamp intensity synchronized with the speed.
- In case of error, it will display an error message on screen.
- After starting of the Machine, it will give signal for ready use or lamp ready.
- Lamp will be off in case of Paper jam.
- Lamp will be off in case of Belt stop.
- Interlocked between Lamp, Blower, and Conveyer.
- Varnish Pump on auto mode.
- User friendly setting of varnish flow.
- Texture Roller can be used.
- For Aqueous and UV, Separate tanks are possible (Optional).
High Speed UV Curing Machine

UV Curing is a polymerization (cross linking reaction) when UV varnish or ink is applied to a substrate and when it passes through UV light it gets cured instantly. It is basically UV Curing System is available in different sizes and for different applications like Sheet Fed, Web Offset Printing, Screen Printing, Letter Press, Flex, Gravure, Varnishing or Roller Coating. We have various kinds of UV Curing systems for different kinds of application. They are available in all sizes from 4” to 72” and different intensities of 200 to 400 watts/inch with option of 1, 2, 3 lamps in one machine. APL UV Curing systems can be customized to meet all your needs. This system can be configured with HOT AIR & IR modules also.

FEATURES

• UV intensity management (25%, 50%, 75%, 100%)/ Hibernation mode.
• Optically simulated to focus maximum energy of the substrate passing below the lamp.
• High speed UV curing process.
• Hot Air and IR Module.
• Teflon conveyor belt.
• Machine can be configured with printing or coating machines to make all your processes an online.
• Vacuum bedded to hold the paper on to the conveyor.
• Auto Lamp of on lifting of Hood
• Suction blower for efficient thermal control system
• AC drive for variable speed of conveyor.
• Panel constructed within the panel
• Automatic stacking system.
• Conveyors with hydraulic system to adjust the height of the conveyor system
• Auto Power Hood (The hood gets lifted pneumatically when there is a power cut or paper gets jammed.
• Lamp hours display.
• Emergency switch.

Applications

<table>
<thead>
<tr>
<th>Paper</th>
<th>PVC Profile</th>
<th>Shoey Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board</td>
<td>Plastic Components</td>
<td>Tiles</td>
</tr>
<tr>
<td>Metal Sheet</td>
<td>PCB</td>
<td>Helmet</td>
</tr>
<tr>
<td>Wood</td>
<td>Medical</td>
<td>Automobile Filter</td>
</tr>
<tr>
<td>Glass</td>
<td>Photography</td>
<td>Watch and Clock</td>
</tr>
</tbody>
</table>

3D UV Curing System

UV Curing technology in early 1960's started commercialising all around the world and since then it’s been accepted and explored in various industry, whether we talk about giving objects all together a dignifying look or using it as a catalyst in various kinds of production techniques. One of its applications revolutionised many industry which is phrased as "3D UV Curing". UV curing from the very beginning has always been an interesting and quiet optically challenging for the manufacturers of UV systems. APL has been successfully able to simulate the UV curing systems in a way that complex three-dimensional parts such as automotive lighting assemblies, plastics moulded parts (like mobile phone cases, wood products, golf balls, etc), fibre glass composite parts, etc are fully polymerised (UV cured) by providing sufficient amount of UV energy to the coated product. It was also important that the end user and the machine is both safe from UV technology so we have made it quiet safe and user friendly for all the people associated with system. It has been rooting itself in various APPLICATIONS like:-

- Molding
- Furniture
- TV Cabinets
- Watches
- PVC Profile
- Helmet
- Golf Balls
- Headlight Lenses
- Reflectors
- Bumper Guards
- Hoods
- Wood Cabinets
- Doors
- Frames

UV Curing Lamps

We are one of the biggest Importer of UV Curing & Metal Halide Lamps. We got a variety of UV Lamps from 4” to 70” in power range of 200 w/inch to 600 w/inch.
APL RC is a Manual Feed Coater for duplex boards and thick paper above 130 Gsm. It is an offline coater and its quiet economical. It coats all types of UV Coating, Aqueous or any other lacquers/varnish very smoothly. It is compatible for all kinds of surface’s i.e. Paper, Board, Plastic, Profiles, Wood, Bamboos, Metal, Glass or various other flat objects.

This machine is available in variant sizes.

**Features:**

- AC drive for variable speed control.
- Compatible rubber rollers for UV and Aqueous base coating
- Noiseless operation
- Variable size of substrate can be coated.
- Air Knife (Optional)