DICE*lab* Process Development Printer

Precision Process Development with Inkjet Technology

Single pass inkjet printing is ideal for a wide variety of high-volume manufacturing applications. The DICE*lab* Process Development Printer is a modular print system that uses the proven DICE*blade* inkjet sub-system to deposit inks and other fluids onto a variety of substrates. This enables manufacturers to quickly bring new inkjet applications from concept to production, using real-world production printheads. Applications include:.

- Materials and process development ("from lab to fab")
- Ink & functional fluid performance testing with different substrates
- Printhead performance testing
- Cure lamp and pinning lamp testing
- Visual inspection of roll-fed products
- Narrow web product printing (e.g. labels, tickets, tags) with fixed or variable data and barcodes
- Printing on 3D objects (with conveyor option)

The DICE*lab* printer uses a user-configurable material handling system that is flexible enough for most process development work – and is readily scalable to production volumes. Users can easily add to the basic configuration to provide for: increased web path length, multiple heads, UV curing, inspection cameras, coating, laminating and custom components. DICE*lab* can also be turned into a conveyor printer with the conveyor option for printing on sheet materials or 3 dimensional objects, or it can use a slide table for objects that require a fixture.

The **DICE***lab* is built up from a series of highly configureable and expandable modules. A basic configuration includes the following:

1. DICE*blade,* one per color or printhead style, with ink supply, drive electronics, printbar and automated head tending.
2. Client specified printhead types from manufacturer's like Fujifilm, Kyocera, Konica Minolta, Ricoh, and Xaar.
3. Two Core Chuck Servo Blocks
4. Web Extension Block
5. Machine base
6. Motorized Printbar Mount (X-Z stage with theta cams)
7. Integrated Power distribution, PC & Software

Additional material user-exchangeable transport options:

- Conveyor
- Slide-table

The DICE*blade* can be easily and quickly removed for service, This allows complete access to both sides of each printhead, drive electronics and ink supply.

The DICE*lab* has spaces for 10 DICE*blades*. The blades can be positioned as required by the customer. Each Blade is either an inkjet color or a different printhead type. This allows the print engine to be reconfigured by the customer between print runs and tests. DICE*blades* can be added at a later date to the DICE*lab*.

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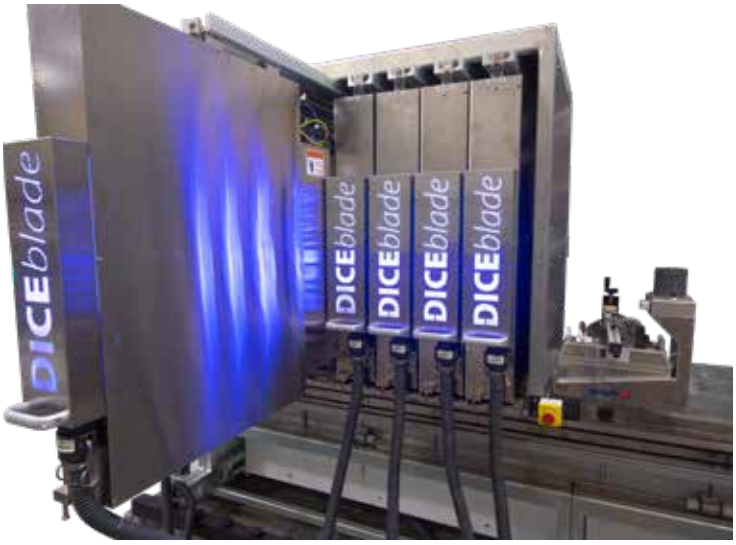
DICE*lab* Process Development Printer

DICE*lab* populated with 6 DICE*blade* modules



DICE*blade* in maintenance position

Unique Features

Many small web printers use cheap motors and pneumatic brake/clutch systems to control web speed and tension. The ***DICE****lab printer instead uses two core chuck servo blocks for precise web control. This provides several benefits:*

- *It can run at constant linear web speed from the beginning of the roll to the end*
- *It can run forward and backward without removing material from the system, allowing the system to backup and review printing without removing material from a roll.*
- *Precise tension control avoids damage to thin plastics, non-wovens or other delicate substrates*
- *The system allows the introduction of additional processes such as coating and lamination stations while maintaining uniform web tension.*

DICE*lab* Module Options

ITEM	Inc.	Comments
Core Chuck Servo Block	2	Unwind / rewind
Web Path Extension Block	1	
DICEblades	1 to 10	Customer Specific
Software	1	
Power Distribution Module	1	
Conveyor module	0	For rigid materials
Slide table module	0	For fixtured parts
UV cure lamp mount	0	LED or mercury
Splice table fixture	0	
Roller flood coater	0	
Laminator	0	
Mount for 'Drop-watcher' camera	0	For waveform optimization
Mount for Jet Expert Macnine Vision Systerm	0	For waveform development
Line Scan Camera Mount (X-Y-Theta Stage)	0	
Linescan camera mount	0	
Linescan lighting mount	0	
Area Camera Mount (X-Y-Theta Stage)	0	
Web steering	0	For precise web control

Specifications

Dimensions	99" x 43" x 80" (2515 x 1092 x 2032mm)
Power requirements	208 – 265 VAC, 50-60Hz 2,000VA
Fluids	UV-curable, organic solvents, aqueous, latex
Max substrate width	8" (200mm)
Max print width	2.5" (64mm)
Material roll	3" core, 12" max O.D.
Speed	49m/min (160ft/min) at 400 dpi 122m/min (400ft/min) at 600 dpi 70m/min (229 ft/min) at 1200 dpi
Web tension	0 – 10lbs (0 – 44.5N)

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