NOTION SYSTEMS

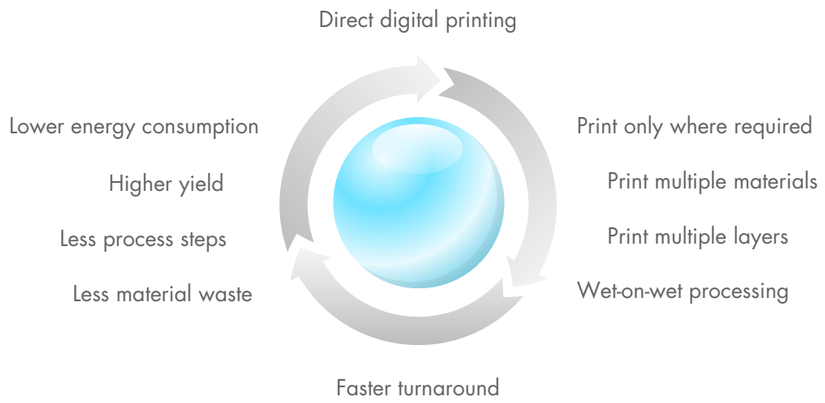
n.jet lab

TECHNICAL INFORMATION

Advantages of inkjet printing

Inkjet is a non-contact, digital printing technology which creates fine structures of 30 microns and below. Non-contact printing enables wet-on-wet processing of substrates, and the fully digital process makes masks or screens obsolete. Inkjet is a highly integrated printing method, where several thousand nozzles are utilized to print at production speeds of up to 2 meters/sec.

Inkjet is used to replace established subtractive process sequences and reduces waste, energy consumption, and makes electronics production more ecological, and more economical at the same time.



The n.jet lab Platform - Advantages

- Open platform that provides access to all process parameters
- Smooth scale-up from R&D to 24/7 industrial production
- Versatile applications with printheads from all major manufacturers
- Multiple configuration with heads and inks from different suppliers possible
- Up to four different active printheads per configuration
- High precision mechanical design with self calibration including nozzle calibration and nozzle replacement strategies
- Clearly structured graphical user interface

Options

- Built in UV pinning
- Built in NIR sintering
- Adjustable head angle
- Rotation stage
- Print stage temperature control 0 - 60°C
- Automation
- Environmental control (temperature and humidity)

Vision Systems

Alignment

- Alignment types: 2... 4 fiducial marks
- Alignment light source: Selectable ring light source, koax light

Drop Watcher

- Drop watcher: Visualisation of drop formation process
- Drop formation analysis: Measurement of drop volume, speed, angle, number of satellites, ...

Printheads

- Number of heads: up to 4 printheads
- Head types: Fuji Dimatix, Konica-Minolta, Xaar, Kyocera, Toshiba, Ricoh, others on request
- Calibration: All nozzle positions calibrated better than 1 µm
- Print resolution: Up to 5080 x 5080 dpi
- Drop placement: ±5 µm
- Print repeatability: ±1 µm
- Jetting parameters: Full access to waveform and all other jetting parameters

Ink System

- Ink types: Fluid, Hotmelt (up to 120°C)
- Tank volume fluid S: Cartridge 2,5 - 50 ml
- Tank volume fluid XL: up to 600 ml
- Tank volume Hotmelt: 50 - 100 ml
- Recirculating tank system: 100 - 150 ml (circulation volume)
- Optional: Up to 1000 ml

The n.jet drop watch

The n.jet drop watch is a very compact and highly integrated measurement system under real production environment. The measurements of droplets under different process conditions helps to optimize the inkjet process, the fluid formulation and the overall system performance.

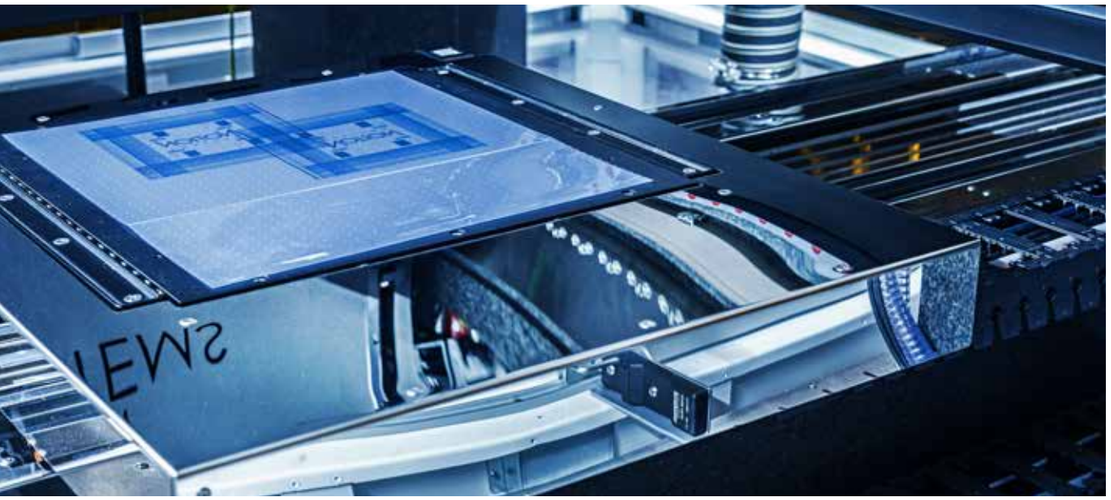
The n.jet drop watch serves two main purposes, visualisation and analysis of the drop formation process.

Visualization is used to optimize fundamental quality parameters, like

- Drop appearance
- Drop formation representability
- No satellites
- No misting
- No wetting of nozzle plate
- Jetting performance at different frequencies

Analysis can be used to optimize advanced parameters, e.g.

- Drop volume
- Drop velocity
- Drop travel angle



Dimensions & Specifications

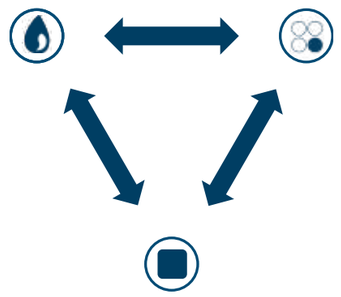
- Stage size: 156 x 156 mm, 305 x 305 mm
- Substrate height: Up to 80 mm
- Substrate fixture: Vacuum hold down
- Print speed: Up to 500 mm/s
- Self calibration: Automated self calibration
- x & y axis type: Ironless linear motor
- x & y repeatability: ±1 µm
- z axis type: Servo motor spindle drive
- Dimensions (LxWxH): 1800 x 1600 x 1900 mm
- Electrical interface: 400 V / 16 A, 3 phases
- Transformer: Supplied by Notion Systems
- Power consumption: < 2 kW
- CDA: 6.5 bar - 8.5 bar
- CDA consumption: < 1 liter per minute

Notion – Application support

Notion's process & engineering team relies on decades of expertise in scaling up functional inkjet processes to industrial production. We support our end users and partners in all aspects of print process development: printhead, ink, substrate, and all intricate interactions involved.

Application support includes:

- Compatibility tests
- Printhead selection support
- Ink selection support
- Print process development
- Pre- and post-processing support
- Process training



Notion supports the optimization of your process and fine tunes the relationship between the substrate, ink print head and application.

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THE FUTURE OF ADDITIVE MANUFACTURING

DISPLAY	ELECTRONICS	SEMICONDUCTOR	3D PRINTING
n.jet display RGB	n.jet soldermask	n.jet photoresist	n.jet optics
n.jet display TFE	n.jet etchresist	n.jet hybrid	n.jet lab
	n.jet roll2roll		