PiXDRO Inkjet Technology
Inkjet Printing Equipment and Application Knowledge

Meyer Burger offers the PiXDRO industrial inkjet printing equipment to apply functional materials for a variety of applications. These functional materials can have dielectric, conductive, adhesive, mechanical, optical or chemical properties, and are printed with pico-liter sized droplets from a digital file. Inkjet printing is an additive manufacturing technology, hence has great advantages in relation to material usage, productivity, environmental impact and costs.

Because of its precise drop placement and volumes, functional inkjet printing has numerous applications in printed and flexible electronics, displays, OLED, sensors, PCB, semiconductor assembly, chemical machining, photo voltaic, life science, and optics. Inkjet printing can create very fine features, down to 20 micron, and can replace conventional techniques such as lithography, screen printing, spray coating and dispensing. Because it is fully digital, there is no need for masks and screens, significantly saving material usage, and enabling fast product change-over times.

Application examples

- **Semiconductor & Printed Electronics**: Accurate deposition of conductors, dielectrics and adhesives
- **OLED & Display**: Homogeneous thin layers, high quality barriers
- **Photo Voltaic**: Inkjet printed HJT solar cell
- **PCB & Chemical machining**: Maskless digital fabrication
Accurate, Versatile and Fast

As inkjet printing is compatible with a wealth of functional materials, it is a very versatile technology. It can be used for direct material deposition for patterned or homogeneous coatings, from tens of nanometers up to tens of micrometers (depending on ink materials). By printing multiple layers of material on top of each other, it can also be used as a 3D printing method.

Inkjet is a non-contact deposition technology, so suitable for fragile and 3D substrates. And can fill trenches and cavities. Furthermore, it is excellent for direct printing of etching and plating masks. Because industrial printheads have hundreds or thousands of parallel nozzles, and operate at very high frequencies, inkjet achieves very high throughput. The PixDro mass production inkjet printers can hold arrays of multiple printheads, enabling high productivity and flexibility.

Direct Functional Printing

Indirect Functional Processing
PiXDRO Inkjet Printers for R&D and Production

The PiXDRO systems have a modular design, which enables a large degree of customization without compromising reliability and lead times. The LP50 and IP410 research and engineering printers excel in flexibility and process control, offering fast product development and time-to-market. The JETx production systems are designed for high productivity and reliability, low cost of ownership and integration in highly automated mass production environments.
PiXDRO Main Advantages

- Offering innovative functional inkjet technology for a wide variety of applications
- Leading in functional inkjet printing since 2004
- Equipment portfolio from R&D to mass production
  - Research (LP50), Pilot production (IP410), Mass production (JETx)
- Application experience
  - Process development support
  - Best in class print strategies
  - Equipment customization
- Extensive knowledge network
  - Working with leading customers and institutes

PiXDRO Main Features

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<tr>
<th>Modular Robust Design</th>
<th>Optimal Process Control</th>
<th>Ease of Use</th>
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<tr>
<td>Configurable hardware and software</td>
<td>Nozzle and print image inspection</td>
<td>Automated product handling</td>
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<td>Integration of pre- and post processing modules</td>
<td>Automated printhead maintenance</td>
<td>Multi-language support</td>
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<td>Choice of base platforms for many applications and substrates</td>
<td>Flexible process control with flow editor</td>
<td>SEMI E10 compatible GUI</td>
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<td>High accuracy stages</td>
<td>MES connection</td>
<td>Flexible recipe editor</td>
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<td>Choice of industrial printheads</td>
<td>User level controlled access</td>
<td>Low maintenance</td>
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<td>Connectivity to other processing equipment</td>
<td>Integration in clean and inert enclosure</td>
<td>Easy printhead exchange and calibration</td>
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Industrial Printheads

PiXDRO inkjet equipment supports a wide choice of industrial printheads from various manufacturers. The overview below shows the most common heads for research and mass production applications.

- **Fujifilm Dimatix**
  - Samba G3L
  - 2048 nozzles
  - Volume: 2.5 pL

- **Fujifilm Dimatix**
  - S-class | O-class | SES | SK3
  - 256 | 256 nozzles
  - Volume: 10 - 90 pL

- **Xaar**
  - 1003
  - 1000 nozzles
  - Volume: 6 - 42 pL

- **Konica Minolta**
  - 512 | 1024
  - 1024 nozzles
  - Volume: 4 - 80 pL

- **Cartridges**
  - Volume: 1 | 10 pL

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