

# This Article Offers a Professional Guide to Industrial Inkjet Printer.

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## What is an Industrial Inkjet Printer?

**Industrial inkjet printing** is a digital printing method that employs high-resolution inkjet heads to deposit droplets of ink onto a variety of substrates, including paper and textiles. Industrial inkjet printers are used by print service providers and manufacturers in many industries - including commercial printing, document printing, textile printing, packaging printing, and more.

Industrial inkjet printers are available in two main configurations: drop-on-demand (DOD) or continuous flow (CF). DOD printers can print on a broader range of substrates due to the ability to manage individual droplets. CF printers have lower initial costs and faster speeds but are limited to porous substrates. Drop-on-demand printers are the best option for producing high-quality prints at fast speeds for most industrial applications.

The term "industrial inkjet printer" is somewhat misleading. In truth, every inkjet printer is an industrial inkjet printer. At its core, an industrial inkjet printer prints a picture by squirting tiny drops of ink onto a page or substrate. The critical difference between the industrial inkjet printers that we carry and those you would find at a retail store is that our industrial printers are specifically designed to print on non-traditional substrates, like wood, metal, glass, plastic, brick, and concrete.



## Are There Different Types of Industrial Printers?

Some of the most common types of industrial printers include:

**Thermal transfer printers.** These printers use a thermal print head to heat a ribbon, which is then transferred onto the substrate.

**Inkjet printers.** These printers use a nozzle to spray ink directly onto the substrate, where it dries instantly.

**Laser printers.** These printers use a toner that adheres to the substrate through an electrostatic process.

### **What Industries Use Inkjet Printing Technology?**

Inkjet printing is one of the most common ways to print text and images onto a variety of surfaces. The technology is used by many types of industries, including:

**Manufacturing-** inkjet printers are used for decorating products with logos, designs, and other information.

**Packaging-** inkjet printers can print on cartons, labels, film, and other materials that come into direct contact with food or household products.

**Research-** inkjet printers are used to print reagents on test strips and other lab equipment.

**Electronics-** inkjet printers are used to print electronic components such as transistors, resistors, and capacitors.

**Aerospace-** inkjet printers can print high-temperature inks on hot surfaces such as aircraft engine parts.

### **How Does the Industrial Inkjet Printer Work?**

#### **The Inkjet Printing Technology**

An industrial inkjet printer uses a combination of ink cartridges and nozzles to produce high-quality images on any surface. It produces millions of droplets every second. The nozzle creates tiny droplets of varying sizes to form the image you want to create.

Inkjet printers can mainly be divided into two types: continuous inkjet printers and drop-on-demand printers. There are two kinds of drop-on-demand printers: piezoelectric drop-on-demand printers and thermal bubble drop-on-demand printers. The former one uses piezoelectric material to vibrate under the pressure of the electric field and make droplets ejected from the nozzle. While the latter ejects droplets by heating up the ink quickly and forming a bubble in an instant.

#### **The Common Structure of Inkjet Printer**

- 1) Print head: including nozzle plate and print head control module;
- 2) Media feeding device: including feeding rollers, feeding motors, etc.;
- 3) Cleaning device: including cleaning rollers, cleaning motors, etc.;
- 4) Curing device: including UV lamps;
- 5) Control system: for controlling all other devices to work Synchron.

### **What is the Difference Between Continuous Inkjet and Drop-on-demand Inkjet?**

Inkjet printers are used in the printing industry for a variety of purposes, including direct mail, packaging, and textiles.

There are two main types of inkjet printers: **continuous inkjet (CIJ)** and **drop-on-demand (DOD)**.

With continuous inkjet (CIJ), the printer is constantly using ink to generate the stream of drops. This method is great for high-speed printing, where large amounts of ink are required. The continuous flow is beneficial because it uses less energy to maintain the jet, which makes it more efficient.

Drop-on-demand printing works by producing a single drop or series of drops only when they are needed. This process is controlled by a print head that ejects tiny droplets of ink onto the material being printed. The most common types of drop-on-demand printing are thermal DOD and piezoelectric DOD.

Thermal DOD printers use heat to generate the bubbles that create droplets, while piezoelectric DOD printers use a piezometric crystal that vibrates when an electric current passes through it.

Piezoelectric DOD printers are popular among commercial printers because they can print at high speeds with better quality than other methods such as laser or dot matrix printing.

### **What Are Some of the Most Important Features of an Industrial Inkjet Printing Machine?**

Today's industrial inkjet printing machines are feature-rich, offering manufacturers the ability to print on a wide range of substrates to produce quality consumer goods. When it comes to choosing an inkjet printing system, there are many features and options to consider that can help you achieve your production goals.

Industrial inkjet printing machines have many advantages over other printing methods, including:

Lower cost and faster set-up than traditional printing methods

Ability to print on a wide variety of substrates, including porous and non-porous materials

Higher resolution than traditional methods

No need for plates or chemical processing

Flexibility in design and size of the print area

Larger print areas than with digital offset presses.

### **What Are Some Common Applications for Industrial Inkjet Printers?**

Industrial inkjet printers have applications in a range of industries, including automotive, aerospace, and chemical. Industrial inkjet printers are used to apply barcodes and other markings to products and their packaging. In the automotive industry, inkjet printers are commonly used to mark vehicle parts with part numbers or other identifying information.



The chemical industry uses industrial inkjet printers for marking chemical containers with product information as well as for marking drum covers with contents, weights, and other information. The chemical industry also uses industrial inkjet printers for marking drums in the chemical bottle filling process.

Inkjet printers can be used for creating QR codes, which contain information that can be accessed by smartphones by scanning the code.

There are many uses for industrial inkjet printers today. Some of these applications include:

medical device labeling

product markings, such as expiration dates and serial numbers

coding and marking, in order to sort and track products

Whatever your needs are, there's an industrial inkjet printer that can fit them. These machines often have a wide variety of features, so you can be sure that they're the right fit for what you need.

### **What Are the Benefits of Inkjet Printers over Other Methods?**

There are many commercial printing methods available today, from traditional offset and letterpress to digital printing. One of the newer methods is industrial inkjet printing, which is increasingly being used for a wide range of products that require high quality, multiple colors, and fast turnaround.

The following are just some of the benefits of industrial inkjet printers over other methods:

**High-quality graphics** – Industrial inkjet printers use tiny dots of ink to create images and text, resulting in very high-quality images. The ability to print at high resolutions (up to 600 dpi) means that you can print very detailed graphics or even photographic images without any loss of quality.

**Fast turnaround** – Industrial inkjet printers can produce thousands of prints per hour, making them ideal for printing large quantities of materials quickly. You don't have to wait days or weeks for your prints as you would with traditional offset printers.

**Multiple colors** – Industrial inkjet printers can print any number of different colors, including white and metallic inks. This allows you to customize your prints with vivid graphics and text in different colors.

**Less waste** – With industrial inkjet printers, there is less waste because you only pay for the actual printed area, and there are no plates or dies needed for the presses.

### **How Do I Maintain My Industrial Inkjet Printer?**

Inkjet printers are relatively maintenance-free machines. However, as with any piece of equipment, proper care will ensure long life and high-quality image reproduction.

Follow these tips to keep your printer running at optimal performance:

Use the correct ink cartridges. Make sure you're using the recommended ink cartridges for your specific model. Different inks produce different results, and non-recommended inks may damage the printer or affect print quality.

Keep ink cartridges sealed when not in use. Exposure to air can cause the ink inside a cartridge to dry up and clog the nozzle, resulting in poor print quality. Therefore, once you remove a cartridge from its protective bag or container, avoid exposing it to air for as long as possible by resealing it in plastic wrap or its original packaging. If you're using a refillable cartridge, make sure it's properly sealed before storing it.

Keep your printhead clean. A dirty printhead can lead to blemishes on your printed material and can even damage equipment if not cleaned properly. Consult your instruction manual for cleaning procedures and use only approved cleaning solutions to maintain your printer's warranty and avoid costly repairs down the road.

Check the nozzle regularly for clogged or debris. Over time, ink residue, dust, and debris can clog the nozzles, and clogged nozzles can cause inaccurate dot placement and reduced print quality.

### **What Type of Ink is Used in an Industrial Inkjet Printer?**

This is a great question. The first thing to understand is that there are two different kinds of ink used in industrial inkjet printers, either water-based or solvent-based. The type you need depends on the application.

The most common inks used in industrial inkjet printers are solvent-based inks. They're composed of solvents and pigments, so they tend to be very opaque and durable. While many industries use these types of inks, the two most common applications are wide-format printing for outdoor signage and printing on plastics.

UV curable inks are another popular choice, especially for printing on plastics, because the curing process actually causes the ink to bind chemically with the plastic substrate. This is a very durable bond and can withstand harsh environments.

Aqueous-based inks (also called water-based) are used mostly for indoor printing jobs that don't require durability or scratch resistance. This includes things like photos, newspaper inserts, and magazines.

### **What's the Difference Between Solvent and Water-based Inks?**

The difference between solvent-based ink and water-based ink is relatively simple. Solvent-based inks rely on oil to carry the pigment, while water-based inks use water. The type of ink you choose will depend on a number of factors, including the type of printer you're using, what kind of surface you're printing on and how long you want the image to last.

#### **Oil Based - Water Based**

Solvent inks are oil-based. The pigment is carried in an oil base that is mixed with other chemicals. It is typically used for outdoor banners because it is weather resistant and can be used on a variety of surfaces. This ink creates a strong smell when it is being printed, so it requires proper ventilation.

**Water-based inks** are made up of emulsion. This means that there are pigments that are mixed with water, along with additives that help the ink stick to the surface you're printing on. Water-based inks can be used for outdoor applications but typically require lamination to protect from weathering conditions and fading from UV rays.

### **Durability**

Solvent-based inks are durable and fade resistant; they can withstand weathering conditions such as rain and snow without peeling or smearing.

For experts, an inkjet printer designed for industrial use is the most appropriate choice. These printers are built to last and can produce results on a wide gamut of materials. In addition, inkjet industrial printers are perfect for printing on sizes that exceed the capabilities of traditional printers, without needing to be replaced. It's also possible to create multi-color images at fast speeds. The primary drawback would be the price; these printers are significantly more expensive than typical inkjet models, but they will also save you money in the long run.