



# ROHINI

**COLLEGE OF ENGINEERING AND TECHNOLOGY**

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## DEPARTMENT OF BIOMEDICAL ENGINEERING

### III Semester

### BM3301 SENSORS AND MEASUREMENTS

### UNIT – 5

#### 5.8 Ink Jet Recorders

An inkjet printer, also known as an inkjet recorder, is a type of printer that creates images or text by propelling droplets of liquid ink onto paper or other media. It is a Non-impact recorder, that do not touch the paper when creating an image.

#### **Construction of Inkjet Recorders:**

Parts of a typical inkjet printer include: Print head assembly:

**Print head** - The core of an inkjet printer, the print head contains a series of nozzles that are used to spray drops of ink.

**Ink cartridges** - Depending on the manufacturer and model of the printer, ink cartridges come in various combinations, such as separate black and color cartridges, color and black in a single cartridge or even a cartridge for each ink color. The cartridges of some inkjet printers include the print head itself.

**Print head stepper motor** - A stepper motor moves the print head assembly (print head and ink cartridges) back and forth across the paper. Some printers have another stepper motor to park the print head assembly when the printer is not in use. Parking means that the print head assembly is restricted from accidentally moving, like a parking brake on a car.

**Belt** - A belt is used to attach the print head assembly to the stepper motor.

**Stabilizer bar** - The print head assembly uses a stabilizer bar to ensure that movement is precise and controlled.

Paper feed assembly:

**Paper tray/feeder** - Most inkjet printers have a tray that you load the paper into. Some printers dispense with the standard tray for a feeder instead. The feeder typically snaps open at an angle on the back of the printer, allowing you to place paper in it. Feeders generally do not hold as much paper as a traditional paper tray.

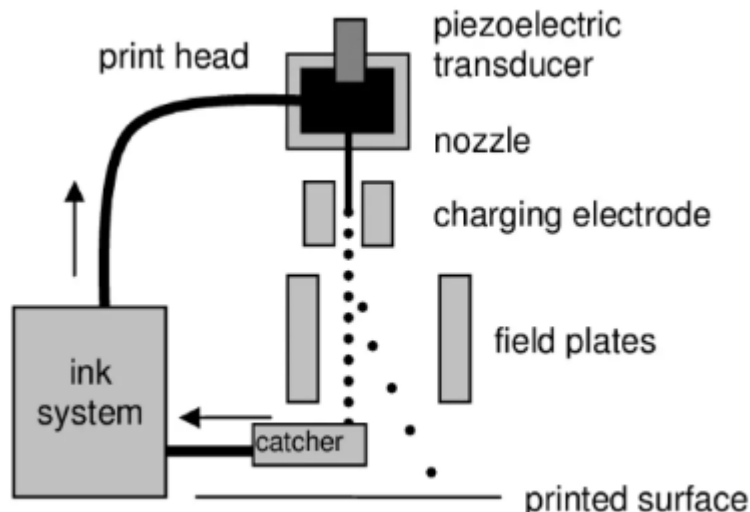
**Rollers** - A set of rollers pull the paper in from the tray or feeder and advance the paper when the print head assembly is ready for another pass.

**Paper feed stepper motor** - This stepper motor powers the rollers to move the paper in the exact increment needed to ensure a continuous image is printed.

**Power supply** - While earlier printers often had an external transformer, most printers sold today use a standard power supply that is incorporated into the printer itself.

**Control circuitry** - A small but sophisticated amount of circuitry is built into the printer to control all the mechanical aspects of operation, as well as decode the information sent to the printer from the computer.

**Interface port(s)** - The parallel port is still used by many printers, but most newer printers use the USB port. A few printers connect using a serial port or small computer system interface (SCSI) port.



Different types of inkjet printers form their droplets of ink in different ways. There are two main inkjet technologies currently used by printer manufacturers:

- Thermal bubble

- Piezoelectric

### **Working of Inkjet Recorders:**

1. In the inkjet recording mechanism, the print head has several tiny nozzles, also called jets. As the paper moves past the print head, the nozzles spray the ink onto it, forming the characters and images.
2. A crystal is located at the back of the ink reservoir of each nozzle. The crystal receives a tiny electric charge that causes it to vibrate. When the crystal vibrates inward, it forces a tiny amount of ink out of the nozzle. When it vibrates out, it pulls some more ink into the reservoir to replace the ink sprayed out.
3. An inkjet printer can produce from 100 to several hundred pages, depending on the nature of the hard copy, before the ink cartridges must be replaced.
4. There is usually one black ink cartridge and one so-called color inkjet cartridge containing ink in primary pigments (cyan, magenta and yellow).
5. Some inkjet recorders use a single cartridge with cyan, magenta, yellow and black ink. A few models require separate cartridges for each primary pigment, along with a black ink cartridge.

### **Applications:**

- i. Document Printing
- ii. Photo Printing
- iii. Graphics and Design
- iv. Presentation Materials
- v. Textile printing
- vi. Educational Material

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