

PRINTERS

Printers are primary output devices used to prepare a permanent document of data and information on paper sheets. Printers available today can produce black and white and color prints. Printers can produce text and images on papers. Printers are classified according to their speed, size and quality of printing.

Printers can be classified as

1. **CHARACTERS PRINTER** - These are low speed printer, printing one character at a time, like a type writer.
2. **LINE PRINTER**-These printers print one line at a time.
3. **PAGE PRINTER**-These are high speed printers printing one full page at a time.

Printers fall in two categories.

1. **IMPACT PRINTERS**- An impact printer makes mechanical contact between the print head and paper. These printers print the characters by physically striking the type device against an inked ribbon with hammer like mechanism. Print mechanisms are drum, chain, daisy wheel etc.

These are classified as

1. **Character printer**- e. g daisy wheel and dot matrix printer.
2. **Line printer** – e. g chain printer and drum printer.
2. **NON- IMPACT PRINTER**-There is no mechanical contact between print head and paper. These printers form the character using heat ink, laser beams. There is no physical contact between paper and ribbon. They are classified as-

1. **Line printer**- e. g (a) Ink jet (b) Bubble jet
2. **Page printer** e. g (a) laser.

IMPACT CHARACTER PRINTER

(A) Daisy wheel printer-

These are impact printers. They produce high quality print of shaped characters, but have a low speed of about 45 cps. The Daisy wheel, which resembles a flower, has many interchangeable spokes, which are arranged in a circular fashion. These printers are very expensive. Each spoke has a character in top which gets printed on the paper, when a hammer strikes on it from the back. These printers are outdated now.

If we want different styles of letters or unusual symbols, we can change the daisy wheel. When the right letters comes over the page, a hammer comes down and slams the letter against the ribbon on to the paper.

(B) DOT MATRIX PRINTER-

They are serial printer and they print one character at a time. The characters are made up of dots. This printer prints the character with a series of closely spaced dots. The most common brands are L & T, EPSON etc. This printer forms

numbers, letters and graphics with the help of 7×5 matrix formed by dots. The printing heads has seven needles arranged in a vertical line and five rows horizontally. Electronic pulses instruct the print head to fire against an inked ribbon to form a correct pattern of dots on the paper. These are used with microcomputer system. The speed of dot matrix printers ranges from 50 cps to 400cps about 240 to 4800 word per minute.

(C) **LINE PRINTER-**

Instead of printing one character at a time, it prints whole line at a time. A line printer has a print band which has character embossed on it. The printer can print 300-600 lines per minutes. These are either a parcel or drum printer or a chain printer. The most common brands are LIPI, PRINTRONICS and FUJITSU.

(a) **CHAIN PRINTER-**

Hear print characters are arranged in chain moves horizontally and paper moves vertically in front of the chain. When a particular character to be printed passes the position, the armature hammer magnet gets magnetized, striking hammer and paper, thus print the character.

NON- IMPACT PAGE PRINTER

The main categories of non impact printers are inkjet printers, thermal printers and laser printers.

1. LASER PRINTERS - These are non-impact printer and are also called page printers. In these printers the main out put device has a light sensitive drum in which dry ink (toner) serve the purpose of ink. The bits of data send by the processing unit turn the laser beam on and off. Laser beam passing from the laser scans back and fourth the drum surface. The positive electric charge on the surface of drum is changed on those parts which are exposed to laser beam create difference in electric charge on the exposed drum surface. The laser exposed parts of the drum attract ink. The attracted ink is then transferred on the paper thus printing the matter on the paper.

Laser printer technology is much less mechanical and less noisy than impact printing, resulting in much higher speed and quicker operation.

2. INK JET PRINTER

An ink jet printer is any printer that fires extremely small droplets of ink on to paper to create impression of text or image. The inkjet printers direct a high velocity stream of ink towards the papers. This stream is deflected, generally by passing it through an electro static field. In such a system, the ink stream is broken into droplets by an ultrasonic transducer.

Non impact printers using ink jet technology are of two types.

(1) CONTINUOUS STREAM OF INK JET PRINTER

Computer Fundamental

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Have an ink jet reservoir from which ink droplets emerge continuously. These drops of ink electrically charged after leaving nozzle and then moves to the respected position where characters are formed.

(2) DROP ON DEMAND INK JET PRINTERS

It consists of a chamber filled with piezo electric crystal. There is a supply of ink reservoir on one side with nozzle on other. As the electric current is passed, crystal gets heat up and this heat vaporizes ink to create a bubble. The expansion that creates a bubble causes a droplet to form and eject from the print head. A typical bubble jet print head has 64 or 128 tiny nozzles and all of them can fire a droplet simultaneously.

3. THERMAL PRINTER

Thermal printer used heat to produce an image on special paper. The print mechanism, rather like a dot matrix print head, is designed to heat the surface of chemically treated paper so that a dot is produced based on the reaction of the chemical to the heat. No ribbon or is involved .For user who want the highest quality desk color printing available, thermal printers are the answer.