

4.2 DIGITAL PLOTTERS AND PRINTERS

PRINTERS:

- Printers can be classified according to their printing methodology Impact printers and Non- impact printers.
- Impact printers press formed character faces against an inked ribbon onto the paper.
- A line printer and dot matrix printer are the examples of an impact printer.
- Non- impact printer and plotters use laser techniques, inkjet sprays, xerographic processes, electrostatic methods and electrothermal methods to get images onto the paper.
- An ink-jet printer and laser printer are the examples of non- impact printers.

Line Printers:

A line printer prints a complete line at a time. The printing speed of line printer varies from 150 lines to 2500 lines per minute with 96 to 100 characters on one line. The line printers are divided into two categories Drum printers and chain printer.

Drum Printers:

Drum printer consists of a cylindrical drum. One complete set of characters is embossed on all the print positions on a line, as shown in the Fig.4.3 The character to be printed is adjusted by rotating drum.

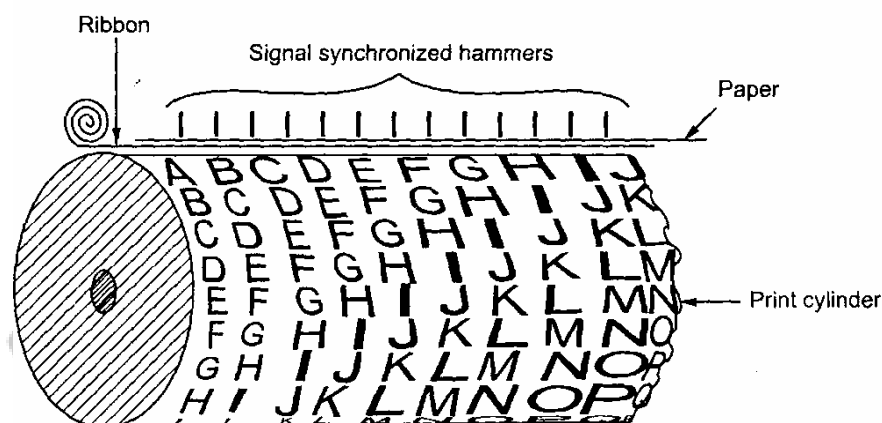


Fig 4.2 Drum Printer

[Source: "Electrical & Electronic Measurements & Instrumentation" by "A.K. Sawhney, and Page: 312]

Chain Printers:

In these printers chain with embossed character set is used, instead of drum. Here, the character to be printed is adjusted by rotating chain. It's shown in fig.4.4

Dot Matrix Printers:

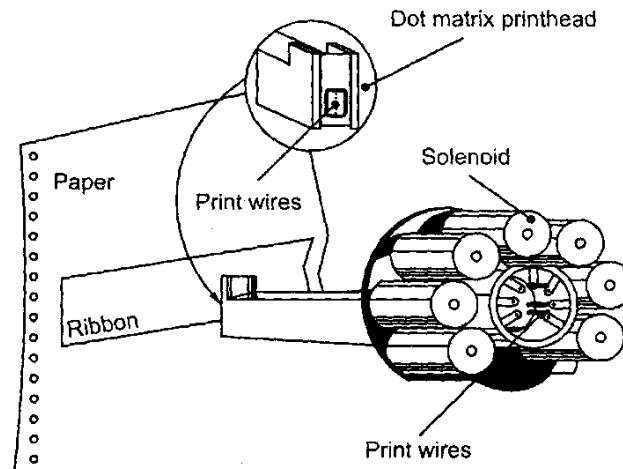


Fig 4.2 Chain Printer

[Source: "Electrical & Electronic Measurements & Instrumentation" by "A.K. Sawhney, and Page: 314]

Laser Printer:

- The line, dot matrix, and ink jet printers need a head movement on a ribbon to print characters. It's shown in fig.4.5
- This mechanical movement is relatively slow due to the high inertia of mechanical elements.
- In laser printers these mechanical movements are avoided.
- In these printers, an electronically controlled laser beam traces out the desired character to be printed on a photoconductive drum.
- The exposed areas of the drum get charged, which attracts an oppositely charged ink from the ink toner on to the exposed areas.
- This image is then transferred to the paper which comes in contact with the drum with pressure and heat.
- The charge on the drum decides the darkness of the print.
- When charge is more, more ink is attracted and we get a dark print.

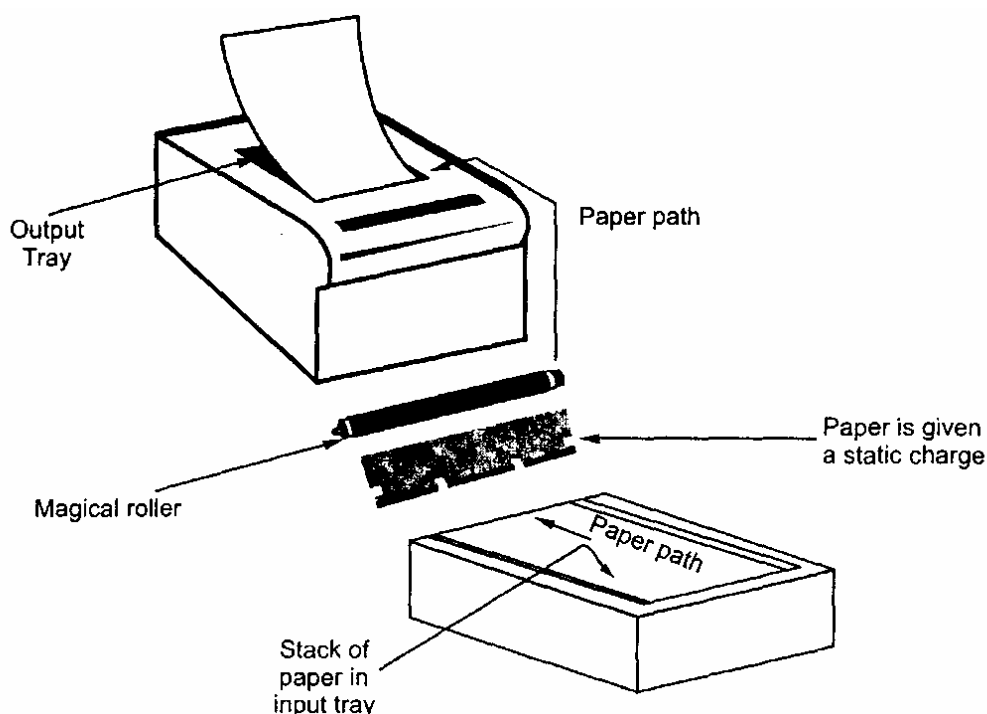


Fig 4.2 Laser Printer

[Source: "Electrical & Electronic Measurements & Instrumentation" by "A.K. Sawhney, and Page: 316]

- A colour laser printer works like a single colour laser printer, except that the process is repeated four times with four different ink colours Cyan, magenta, yellow and black.
- Laser printers have high resolution from 600 dots per inch up to 1200 per inch.
- These printers print 4 to 16 page of text per minute.
- The high quality and speed of laser printers make them ideal for office environment.

Advantages of Laser printer:

- The main advantages of laser printers are speed, precision and economy.
- A laser can move very quickly, so it can "write" with much greater speed than an inkjet.
- Because the laser beam has an unvarying diameter, it can draw more precisely, without spilling any excess ink.
- Laser printers tend to be more expensive than ink-jet printers, but it doesn't cost as much to keep them running.
- Its toner power is cheap and lasts for longer time.