

It's the most important add-on you can buy for your computer, and there are models to suit every pocket, but you should make sure to choose the right type – inkjet, laser printer, or dot-matrix. We tell you what each can do, and give some basic advice on what to buy

Buying a PRINTER

Unless you've bought a PC solely to play games, you will eventually want to get your work onto paper. For this, you'll need a printer.

Almost everything a PC can be used to produce has a real-world equivalent: for example, letters, invoices, record cards and pictures. While all these might look wonderful on the screen, if you can't print them out and give or send them to other people, they are ultimately worthless.

Types of printer

There are only three different types of printer – provided we ignore the expensive or specialist devices that do not belong in the home or office. These are dot-matrix, inkjet and laser printers.

Printing technology proves the old adage that you get what you pay for:

- Dot-matrix printers are the cheapest kind of printer, but their print quality is moderate and they are noisy.

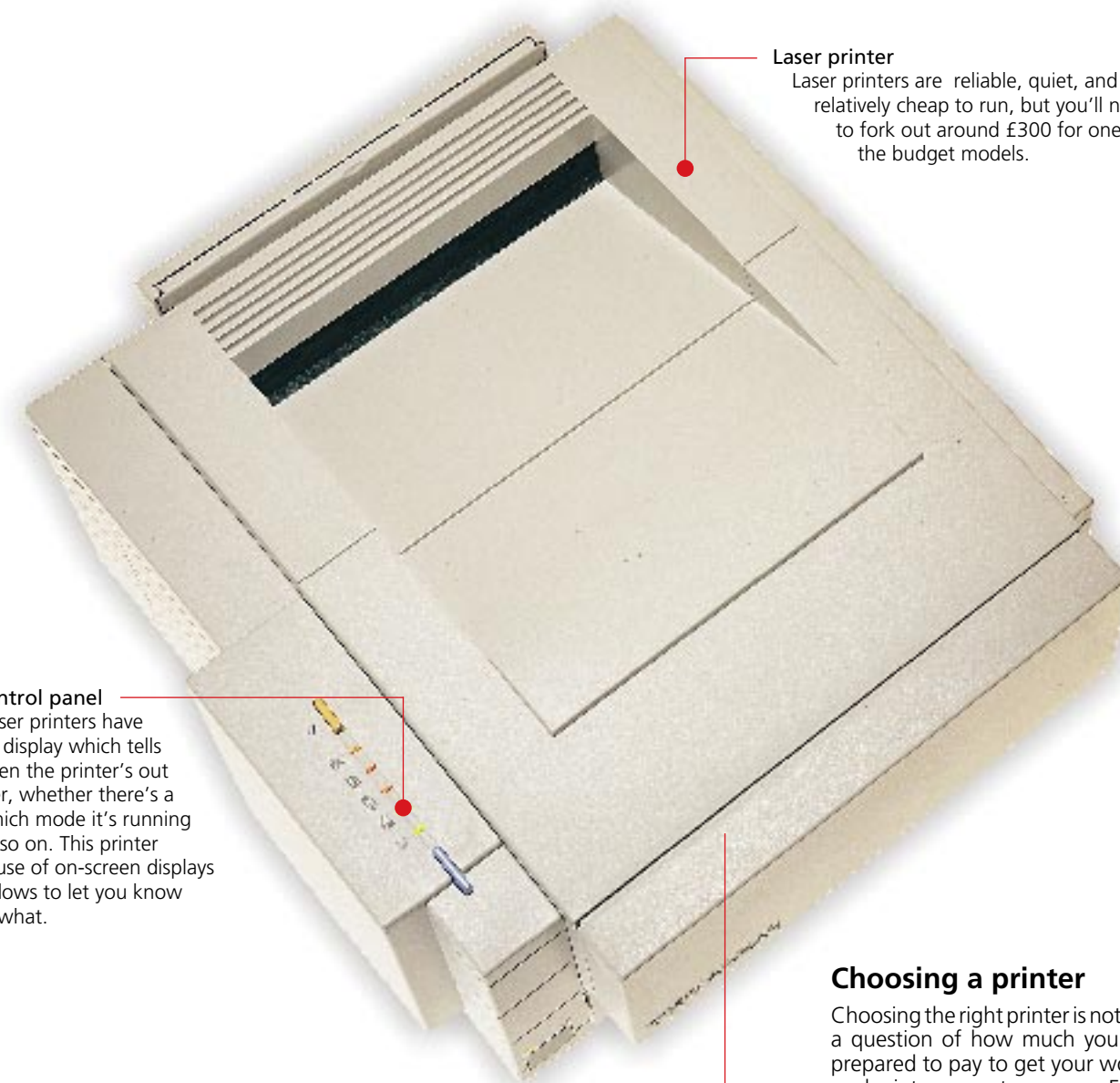
- Pay a bit more for an inkjet and you'll get better quality and quieter operation but inkjets are relatively slow and also expensive to run.

- A laser printer gives you the best quality of output, prints faster than either of the other two types of printer and costs less to run than an inkjet. Unfortunately, it costs almost twice as much.



Inkjet printer

Prices for inkjet printers start at around £150, but running costs can be higher per page than other types of printer.



Laser printer

Laser printers are reliable, quiet, and relatively cheap to run, but you'll need to fork out around £300 for one of the budget models.

The control panel

Most laser printers have an LCD display which tells you when the printer's out of paper, whether there's a jam, which mode it's running in, and so on. This printer makes use of on-screen displays in Windows to let you know what's what.

Toner cartridge

Laser printers use toner instead of ink, similar to that used in photocopiers. Changing a toner cartridge takes just seconds.

Choosing a printer

Choosing the right printer is not just a question of how much you are prepared to pay to get your words and pictures onto paper. Each printer has its strengths and weaknesses. For most people, finances permitting, a laser printer is the best all-rounder, but take a look at the table on the left. It compares monochrome (black-and-white) printers.

Dot-matrix printers have a capability that neither inkjets nor lasers possess – they can print on multi-part paper. This is invaluable if your primary output is going to be invoices and statements from an accounting program. However, be warned, the noise from even a modern dot-matrix becomes very annoying after a couple of minutes' printing. They are noisy because they print by firing metal pins onto an ink ribbon. The pins then press the ribbon against the paper to produce the image. For this reason, dot-matrix printers are said to be impact printers.

Inkjets work by spraying ink onto the paper. This makes them virtually silent but also accounts for their high running costs: the ink is expensive. In addition, the paper comes out of the printer with wet ink on it. Unless you leave each page to dry for a few seconds, it will smudge if you touch it. The inkjet technology, ►

Printer types compared

	Print quality	Speed	Running costs	Noise level	Multi-part paper	Workload	Minimum price
Dot-matrix	moderate	moderate	low	high	yes	moderate	£100+VAT
Inkjet	good	moderate	high	very low	no	low	£150+VAT
Laser	excellent	fast	moderate	low	no	high	£300+VAT

Dot-matrix printers

Advantages: they're very cheap to buy, very cheap to run, and can print on continuous multi-part paper in black or colour.

Disadvantages: they're very noisy, and the print quality is inferior.

Inkjet printers

Advantages: quiet, compact, cheap to buy, with print quality approaching that of laser printers. They're a good choice if you frequently need to print using colour.

Disadvantages: expensive to run since, in the case of most inkjets, replacing the ink cartridge means replacing the electronic printhead too.

Laser printers

Advantages: great for black and white. Fast, quiet, and high-quality.

Disadvantages: more expensive to buy.

which is capable of producing high-quality output, thus carries its own insuperable disadvantages and will never be able to match the speed and convenience of a laser.

Lasers work pretty much like photocopiers. They use toner which adheres electrostatically to the paper and is then literally fused at high temperatures to form the image. This means the copies come out quickly (at between 4 and 16 pages per minute) and they come out dry. Laser technology is now very well established and despite their fast output, laser printers are very reliable.

What about colour?

All three types of printer can be bought in versions capable of producing colour. A colour printer can also be used to print in monochrome, though this can work out to be more expensive than using a designated mono printer. If you want good quality the only affordable option is an inkjet.

- Colour laser printers do exist and they produce terrific output, but you'll need the best part of £5,000 to get hold of one.

- Colour dot-matrix printers can be bought for only £20-£30 more than monochrome versions but they are only suitable for the simplest type of output.

- For colour work, the inkjet is once again a compromise between the desirable laser and the disappointing dot-matrix machines. However, for only £50-£100 more than the price of a monochrome machine you can buy an inkjet capable of producing quite acceptable colour: not of photographic quality, but good enough for coloured text and charts and simple pictures. However, colour inkjets are significantly more expensive to run than monochrome models. For a start, you only get the best colour if you use special paper that can cost anything from 8p to 30p per sheet and a £25 ink cartridge might only last for around 80 pages. Monochrome pages cost around 3p each.

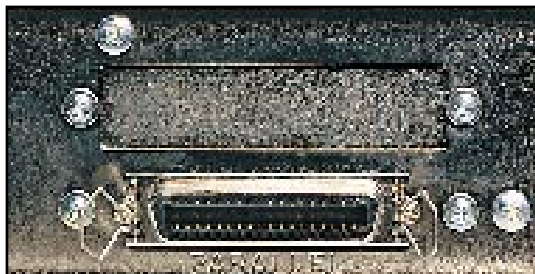
Speed

Speed is important, especially when buying a laser or inkjet printer. It is expressed in pages per minute and usually abbreviated to ppm. Manufacturers' figures are often on the optimistic side so, if possible, judge by test results rather than quoted figures. Our printer reviews in *What PC?* always include a speed evaluation.

Two or three pages per minute is the average for inkjets but lasers

Understand the spec

Let's say you've decided what type of printer to buy: laser, inkjet or dot-matrix. You've then got to choose which model and from which manufacturer. To compare what each has to offer you'll have to interpret advertisements in *What PC?* and elsewhere, and this will mean understanding the specifications you come across.



The printer's parallel socket (above) connects your printer to your PC using the cable (below).



are seldom slower than 4ppm. Typical laser speeds are 4, 6, 8, 10 and 12 pages per minute. The faster the printer, the more it costs. For home use, a 4ppm printer is fine. Dot-matrix speeds are quoted in characters per second (cps). 200 is a typical figure, but it applies to text only, and not to pictures. Dot-matrix printers are incredibly slow at printing any type of non-character output.

Resolution

This is expressed in dots per inch, horizontally and vertically. It's a measure of how many dots it takes to print a solid black one-inch square. A printer described as 300x300 will use 300 rows, each consisting of 300 dots to print the square. That's a lot of dots: 90,000 to be precise.

A simple rule of thumb is that the more dots are used, the clearer and finer the printed image will be. Most cheap lasers print at 300x300 dots per inch. More expensive ones print at 300x600 or even 600x600.

If you compare resolutions, only do so within a particular printer family. For example, the output of a dot-matrix printer will never equal a laser's, however high a resolution the dot-matrix uses.

Similarly, many inkjets are capable of 360x360dpi, but you should not assume this makes them better than a laser of 'only' 300x300dpi. Lasers place their dots more accurately.

Paper handling

The size of the paper input tray is important. If you can load 200 sheets of paper into the printer, it not only means you have to change the paper less often, it also means you can set the machine to print multiple copies while you get on with something else. Printers that take only 10 or 20 sheets need constant attention.

Incidentally, check the size of the output tray as well. Some printers have output trays that can't accommodate the entire contents of their input trays.

Some printers come with an extra input tray that can be used with envelopes or a different size of paper at the same time as the main input tray. Others use just one multi-purpose input tray, in which case, if you need to use several papers, you'll be constantly changing the contents of the tray.

Size

The size of a printer is often referred to as its 'footprint'. Actually, a printer's footprint is a measure of its width and depth, rather than its total bulk. The question to ask yourself is whether, with all its paper trays extended, the printer will fit comfortably on your desk-top. You will need about four inches of ventilation on each side.

Buying tips

- A higher purchase price might be justified by lower running costs.
- A laser is the best all-round printer.
- Inkjets are a good compromise but they are expensive to run.
- Don't pay for colour unless you really need it.
- Dot-matrix printers can print on multi-part and tractor paper.
- Make sure the printer can handle the types of paper you expect to use.
- Ensure the printer will fit on your desk.
- Take manufacturers' claims with a pinch of salt.