

Brother HL-730 Plus

Canon LBP-660

Epson EPL-5500

HP LaserJet 6L

Kyocera FS-600

Lexmark Optra E+

Ok! Okipage 6ex

QMS DeskLaser 600

# PERSONAL SERVICES

**If you thought a laser printer would cost a fortune, think again. We test eight of the latest models that will set you back less than £500**

**I**nkjet printers are perfect for printing high-quality colour images, but if all you want to do is churn out pages of text, then a laser printer is the way to go.

Forget what you may have heard about laser printers being expensive to buy and run – they're not. A decent laser printer costs little more than a quality inkjet printer and running costs are well below those of an inkjet printer for certain jobs. What's more, many laser printers are now small enough and quiet enough to perch on the edge of your desk – gone are the days when they needed their own desk six feet away to combat the smell.

We've tested eight personal laser printers this month, so called because they're small and cost well below £500.

### Why buy a laser printer?

If you're looking for a general-purpose printer for letters, reports and possibly the odd colour image, then buy an inkjet. If, however, you regularly need to print pages and pages of text, then you

should be considering a laser printer.

Laser printers produce higher-quality text than an inkjet and more importantly, produce it more quickly. The downside is that at this sort of price, laser printers are restricted to black-and-white printing. That's not to say that a laser printer can't produce graphics – all of the printers here can print acceptable images at the very least and some are very good indeed.

### Lasers & LEDs

Although we're billing all the models tested here as laser printers, that's not strictly the case. One doesn't use a laser beam at all – the Okipage 6ex.

Whereas a laser printer uses a laser beam to build up an image to be printed (see 'How a laser printer works' box on page 108), an LED printer uses a row of LEDs – Light Emitting Diodes. In practical terms this makes little difference to the image that you get on the page, but LED printers have fewer moving parts than their laser-based counterparts (making them generally cheaper) and produce



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less ozone (making them less smelly).

That said, the Okipage 6ex is actually one of the most expensive printers here and we didn't test it long enough to comment on its ozone production. It's up to you whether you think an LED printer is a worthwhile investment but they are worth considering if you're particularly sensitive to ozone in the atmosphere.

## Setting up

Setting up a laser printer could not be simpler. Once removed from its packaging, it's simply a matter of fitting the toner cartridge and developer drums (or in some cases, a single combined unit), and then installing the drivers.

The toner cartridge contains the ink used to make an image on the page and, with one exception, all you have to do to fit one is lift the printer's lid and drop the cartridge in place. The Kyocera FS-600, however, locks the cartridge in place with a spring-loaded clip and we found this very fiddly to operate. We fitted the cartridge eventually, but only after spilling toner all over the desk and ourselves.

One point to note is that none of the printers came with a parallel printer cable and you can't print anything without one. This will add an extra £10 or so to the price but make sure you buy a bi-directional cable.

## Size & weight

Personal laser printers, by their very nature, are extremely compact but some are smaller than others. Smallest of all is the QMS DeskLaser 600 and this can be stood on all but the smallest of desks. Its small size does make some sacrifices in paper handling though, and sufficient space needs to be left at the front of the printer for printed pages to emerge.

The size of some of the other printers is deceptive too. Although the Brother HL-730 Plus and Epson EPL-5500 look compact, their fold-out paper collection trays dramatically increase the amount of space they occupy.

The other printers are more self-contained and require no additional desk space during their operation. This does mean that they must send pages through a tighter path, though none of the printers produced unduly curly pages.

## Resolution

If you're torn between buying an inkjet or laser printer for printing text, don't be

swayed by inkjet manufacturers' claims about higher resolutions.

Both inkjet and laser printers form an image on the page by placing thousands of tiny dots. A 600dpi (dots per inch) printer can print 360,000 (600x600) dots in every square inch and the higher the resolution, the more dots. In theory, more dots means a sharper image but

this isn't always the case. Although a laser printer may use fewer dots than an inkjet, it can place them much more accurately, resulting in text with very smooth edges.

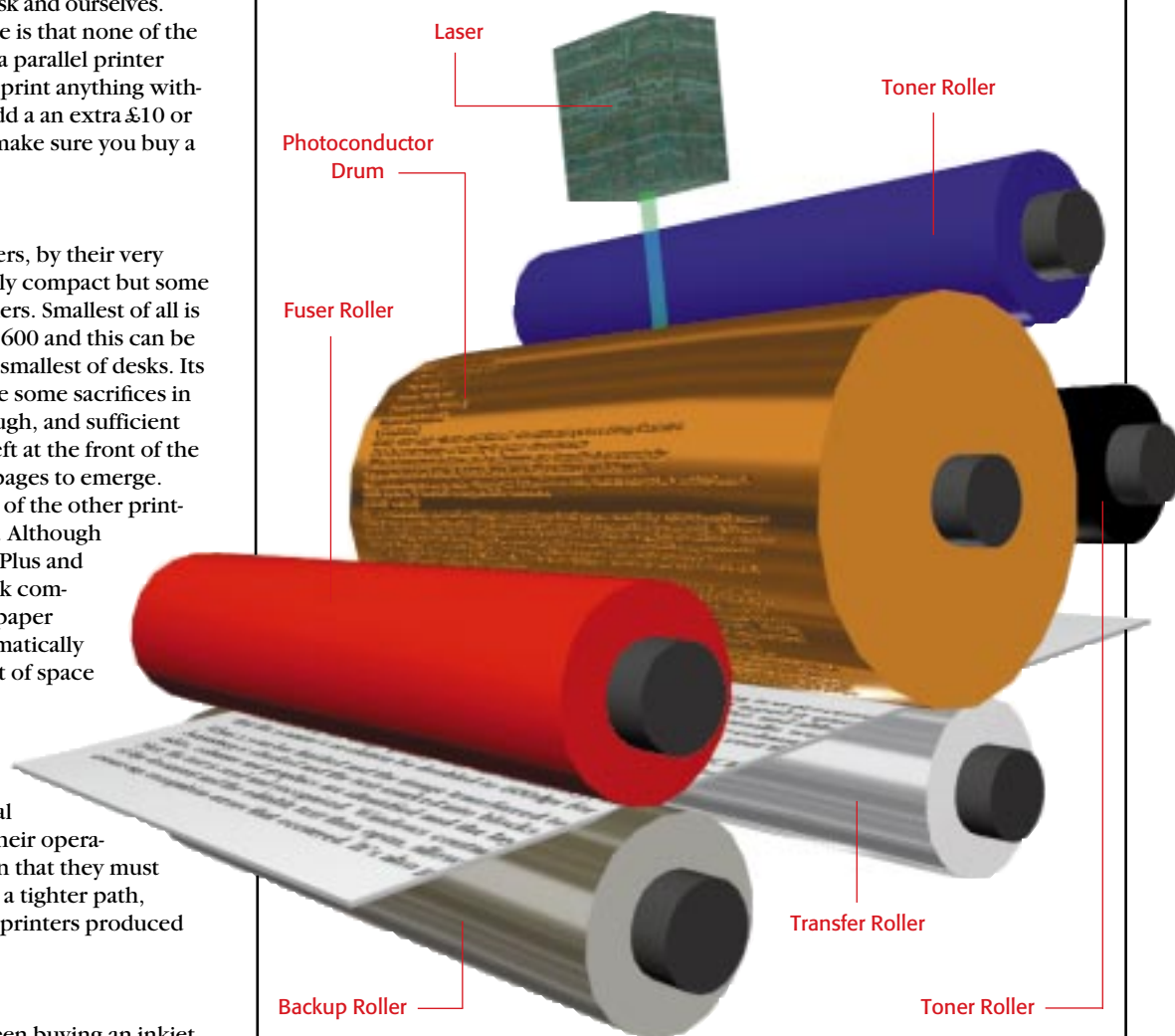
Inkjet printers don't have the same degree of control over where the ink drops land and so can't produce text that is quite so sharp.

## How a laser printer works

**A**s their name suggests, laser printers use a laser beam to get an image onto the page. When you click 'print' in an application, an image of the page is sent to the printer via the printer cable. As the printer springs into life, the charging roller transfers an electrical charge to the photoconductor drum. The charge repels toner particles.

Next, the laser beam 'draws' an image of the page onto the drum and wherever the beam strikes, the drum loses its charge. As the drum rolls past the toner roller, toner is then attracted to the uncharged areas and so an image is formed on the drum.

The toner is more attracted to paper than the photoconductor drum, so as a page is rolled between the drum and the transfer roller, the toner is transferred. The toner is still a powder at this stage, so, to create a permanent image, the paper is heated by the fuser roller. This melts the toner, fixing it to the page and explains why pages printed by a laser printer always come out warm.



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## Paper capacity & feed

Since all the printers here will fit comfortably on a desk, loading them with paper periodically isn't too much of an effort. The Brother HL-730 Plus has the greatest paper capacity at 200 sheets, and the Epson, Kyocera and Lexmark printers follow at 150 sheets a piece. The Kyocera also has an optional paper bin (£152.75) that boosts its capacity still further and this adds little to its size.

All the printers here also have a manual feed slot for single sheets of paper. This allows you to print occasional pages on headed paper, for example, without unloading the main paper bin.

## Quiet please

One of the advantages of having a personal laser printer is that it can sit comfortably on a desk next to your PC. To do this though, the printer should be quiet in use and, thankfully, all of them were. In fact, apart from the slightly squeaky Okipage 6ex's paper-handling mechanism, they are almost silent when printing.

## Performance

As you can see from the figures in the table, four or five pages a minute is nothing unusual for a personal laser printer and both the QMS DeskLaser 600 and Kyocera FS-600 can manage around five-and-a-half pages a minute.

When it comes to text quality, there's little to distinguish between the printers either. With 12-point text, the printers are pretty much identical, producing distinct, black characters with sharply defined edges.

Things are a little more varied when it comes to printing graphics. The Hewlett-Packard LaserJet 6L comes out on top with monochrome images, producing even areas of tone with ample detail. Although by no means a poor performer, the Lexmark Optra E Plus came out bottom for image quality, solely because its image print was comprised of dots that were noticeably larger than the rest.

The other printers performed relatively well with images and all of them could easily be used for such things as including photographs in newsletters.

A final comment on performance. Every printer here allows you to carry on working while your PC prints in the background. Apart from the QMS DeskLaser 600. No matter how the printer was configured, the PC (a Pentium II 300 system with 64Mb of RAM) was frozen for a few seconds, each time a page was printed. This can probably be blamed on the printer's driver but it gains the DeskLaser 600 a black mark.



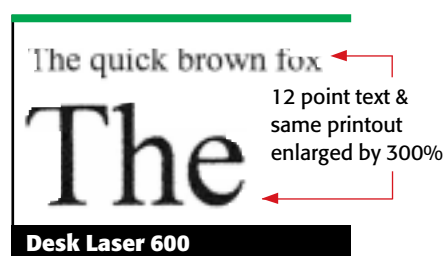
## Personal laser printers compared

		Brother HL-730 Plus	Canon LBP-660	Epson EPL-5500
Specifications	RRP inc VAT (1)	£316.08	£351.33	£421.83
	Type	Laser	Laser	Laser
	Resolution	600dpi	600dpi	600dpi
	Paper capacity	200	100	150
	Dimensions (wxdxh)	366x250x353mm	336x321x249mm	352x407x217mm
	Weight	6.5kg	7.2kg	5kg
Features	Pages per minute	5.1	5.3	4.0
	Separate sheet feed	●	●	●
	Separatedrum/toner unit	●	○	●
	Toner cost	£22.91	£70.50	£38.70
	Toner life (pages)	2,200 @ 5% coverage	2,500 @ 5% coverage	3,000 @ 5% coverage
	Drum cost	£129.25	n/a	£54.71
	Drum life	20,000 pages	n/a	20,000 @ 5%
	Warranty	1-year return to base	1-year on site	3-year on site
Ratings	Build quality	★★★★	★★★★★	★★★★★
	Image quality	★★★★	★★★★	★★★★
	Performance	★★★★	★★★★★	★★★★
	Value for money	★★★★	★★★★	★★★★
	Overall	★★★★	★★★★	★★★★
Details	Contact details	Brother: 0161 330 6531	Canon: 0121 680 8062	Epson: 0800 289622
	Web site			
	High street availability	PC World, Byte	PC World, Byte	○

Note: (1) Manufacturer's recommended retail price. Street prices are usually lower. ○ No ● Yes

★ = Poor ★★ = Below average ★★★ = Average ★★★★ = Good ★★★★★ = Excellent

## Text and graphic print samples



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HP LaserJet 6L	Kyocera FS-600	Lexmark Optra E+	Oki Okipage 6ex	QMS DeskLaser 600
£364.25	£351.33	£434.75	£433.58	£233.83
Laser	Laser	Laser	LED	Laser
600dpi	600dpi/1200	600dpi	600dpi	600dpi
100	150	150	100	100
335x312x370mm	363x360x222mm	348x378 298mm	320x360x175mm	320x306x146mm
7kg	8.5kg	5kg	7.7kg	6kg
5.2	5.6	4.8	3.8	5.7
●	●	●	●	●
○	●	●	●	○
£62.39	£35.25	£36.81	£19.98	£76.38
2,500 @ 5% coverage	3,000 @ 5% coverage	3,000 @ 5% coverage	2,000 @ 5% coverage	3,000 @ 5% coverage
n/a	n/a	£52.03	£170.38	n/a
n/a	n/a	20,000 pages @ 5%	20,000 pages @ 5%	n/a
1-year return to base	1-year return to base	1-year on site	1-year on site	1-year return to base
★★★★★	★★★	★★★★★	★★★★	★★★★
★★★★★	★★★★	★★★★	★★★★	★★★★★
★★★★★	★★★★★	★★★★	★★★	★★★★
★★★★★	★★★★	★★★	★★★	★★★★★
★★★★★	★★★★	★★★★	★★★★	★★★★
Hewlett-Packard: 0990 474747	Kyocera: 01189 311500	Lexmark: 01628 481500	Oki: 01753 819819	
PC World, Byte	○	www.lexmark.co.uk	www.oki.co.uk	www.qms.nl
		○	○	PC World

QMS



Left and far left: Samples of the output of the HP LaserJet 6L and QMS DeskLaser 600. Both print crisp text that is actually readable down to 3 points. The LaserJet has the edge with graphics but both produce detailed prints.



None of the laser printers tested here performed particularly badly and, despite the differences in price, there really isn't that much to distinguish between each model. Choosing a single printer as our Best Buy is therefore difficult but one does stand above the rest in terms of performance and value for money – the Hewlett-Packard LaserJet 6L. Capable of a useful turn of speed and with crisp text output, the LaserJet 6L doesn't disappoint when it comes to graphics either. Not the cheapest but certainly the best.



Given that it costs at least £100 less than the competition, the QMS DeskLaser 600 represents outstanding value for money. It's the smallest laser printer of the ones tested, making it ideal for use in places where desk space is in short supply. Both text and image print quality is excellent and pages are produced quickly. In fact, the only reason it didn't run away with the Best Buy was that the driver caused a few problems with our test PC. Julian Prokaza