

Crowning your prints

Every business has different printing needs, but whether you're looking for **speed or quality**, low-end or high-end, we've got what you need. So sit back, relax, and follow our in-depth guide...

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• *Printers reviewed by Jason Jenkins and Will Head.*
Tested by Jon Sayers.

Ratings

- ★★★★★ Buy while stocks last
- ★★★★ Great buy
- ★★★ Good buy
- ★★ Shop around
- ★ Not recommended

If you are looking to buy a printer for your small business then you're in luck, as there are plenty of options.

This month we take a look at a cross-section of the models currently on offer and put them through our series of rigorous bench tests. We have split them into two distinct groups: low end (under £300 ex VAT) and high end (over £300 ex VAT). So to see what you can get for your money and what difference there is between the two price points, read on.

How we did the tests

Each printer was tested on the same PC, using the drivers supplied by the manufacturer. At the end of each test, the drivers were removed to ensure a clean install for the following machine. We took a note of the time it took for each printer to produce a 50-page Word document, a 50-page PDF, a 12-slide PowerPoint presentation and an A4 letter. We then let the printer go into standby mode and timed how long it took to wake up when the same A4 letter was sent through. The final test involved printing a greyscale image and a page of graduated text. We decided which of the printers had the best and worst quality output and came up with a rank order. For the greyscale image, we were looking at which machine could produce the clearest, sharpest picture with the correct level of uniform shading. For the page of graduated text, we used a magnifying glass to check the text and establish the quality of its smallest characters. We were looking for problems such as toner spread and the legibility of the text at a variety of point sizes.



Brother HL-1250

Low end

This compact machine has everything you could reasonably ask for at the price and is a deserved winner of our Editor's Choice award. We found it very easy to set up, and Brother had been thoughtful enough to include drivers in both floppy and CD format. An A3 wallchart was included, with some easy-to-follow instructions to get you going. There was even a useful instruction video clip on the driver CD to help you out if you get stuck.

Brother impressed us with the inclusion of both parallel and USB ports. The printer supports PCL Level 6 but not PostScript. In our tests, the 4MB of RAM – combined with the 66MHz processor –



made this a fairly nippy model for the price and it was unbeatable in the PDF test.

This was not reflected in the Word document speed, however, where it ranked very poorly.

One other gripe we had concerned the manual-feed slot. There's no support for any paper you put in it, which could be irritating if you intend to use the feeder a lot. It does have a 250-page paper tray at the bottom of the unit, however, and there is a visual indicator so you can see

how much paper remains without having to open it up to take a peek. Overall, this is an excellent printer, with a low running cost – a great buy for low-end users.

PCW DETAILS



★★★★★

Price £245.58 (£209 ex VAT)

Supplier Simply 08707 297 366

www.brother.com

Good points Low running cost, USB and parallel ports, good performance results

Bad points Lack of support for paper in the manual-feed slot

Conclusion A fantastic all-rounder and it's even small enough to fit on your desk

Canon LBP-800

Low end

This is one of the cheapest printers here, but it's also one of the best. It did well in most of our performance tests and was especially fast considering its low price. We found it easy to set up and liked the printer driver's status monitor, which shows how many pages there are left to print and how long they will take. We had one grumble: the printed manual was very basic – a more in-depth version appears in PDF format on the CD.

The LBP-800 only has a parallel interface, but at this price we don't feel that we can complain. Paper sits in the



top of the printer in a 125-sheet tray, which is supplemented by a manual-feed slot. There are no LEDs to indicate status, and you can't change any of the printer settings from a front panel – it only has a power button.

This is a very impressive printer, which performed better than our Editor's Choice. However, the running cost is relatively high – a 2,500-sheet toner cartridge costs £60 ex

VAT. Compare this to Brother's 3,000-page cartridge for only £32.99 ex VAT and you can see why the HL-1250 has the edge. But if you want a printer that costs less to initially set up, this is it.

PCW DETAILS



★★★★★

Price £218.55 (£186 ex VAT)

Contact Dabs Direct 0800 138 5204

www.canon.co.uk

Good points Good performance results, low initial outlay

Bad points High running cost

Conclusion A great performer that costs little to buy initially. Beware of the running cost though

Epson EPL-5700

Low end

This was one of the fastest low-end printers in the test and on this basis was doing very well. It raced along on both the word and PDF tests and had a fast recovery from standby. However, when it came to judging print quality, the EPL-5700 was not the best on offer.

Its speed was due to the 4MB of memory supplied in our version together



with the fast 100MHz processor. We found the printer extremely easy to set up – just a few clicks and it was ready to go. It came with both parallel and serial ports. Build quality is good – it looks and feels robust and the single paper tray inserts into the base of the unit. A button on the side of the printer opens it up for access to the inner workings. There's no LCD, of course, but there are three status indicator LEDs on the front and four control buttons, so it's fairly easy to change some settings without using the driver software. It supports PCL

Level 5e and has an option for PostScript Level 2, if you feel you need it. Running costs are roughly on a par with our

Editor's Choice – a 6,000-sheet toner cartridge costs £60.91 ex VAT. If speed is the most important thing to you when you're choosing which laser to buy, then this is definitely worth a look, as it's the fastest printer available at this price.

PCW DETAILS

★★★★★

Price £277.30 (£236 ex VAT)

Contact SMC 01753 550 333

www.epson.co.uk

Good points Very fast for the money

Bad points Quality could be better

Conclusion A good, fast, easy-to-use printer that let itself down in the quality tests

HP LaserJet 1100A

Low end

Printing has been part of HP's core business for many years now, but the company is at its best when producing high-end workgroup printers rather than the lower-end model seen here.

Although this is a good product, it is more expensive than others on test and under-performs when compared to the competition. Its main problem is that it only comes with 2MB of memory. This contributed to its very slow result on the PDF and PowerPoint presentation tests, although it was the fastest low-end printer in the Word document test.

It was easy to set up, with very user-



friendly driver software. There's a well-written manual in both printed and on-line format. Paper is contained

in an upright stand – for this price we would have preferred a dedicated fold-away tray. It can only hold 125 pages compared to other more generous 250-page models and it has a parallel port but no USB or serial – again, for the price we would like to have seen one of these. Running costs are slightly higher than other printers on test, although they are by no means exorbitant – a 7,000-page

toner cartridge will set you back £47 ex VAT. In common with most of the other printers in this group test it does not support PostScript, but PCL Level 5e is there in all its glory.

PCW DETAILS

★★★

Price £334.88 (£285 ex VAT)

Contact SMC 01753 550 333

www.hp.com/uk

Good points Easy to use, fast performance on text

Bad points PDF and PowerPoint performance was slow

Conclusion Not a bad printer, but it's eclipsed by its cheaper rivals

Kyocera FS-680

Low end

This is one of the cheapest printers in this category as far as running costs are concerned. It supports both PCL Level 5e and PostScript Level 2 – a rarity at this price. Performance-wise, it wasn't the fastest printer, but it would still be adequate for a small office on a budget. It was best when printing text and coped with the PDF document fairly well. However, when it came to printing a PowerPoint presentation, we had problems getting it to print the first page of our test document. This was resolved by downloading a new driver from Kyocera's website. Once it was functioning correctly, its performance on this test was bad – it was the slowest of all the printers regardless of category.

The FS-680 was not the easiest

printer to install, and the installation program took some finding on the supplied CD-ROM. In terms of quality it was not among the best either, but for day-to-day



operation this is not a serious issue. Build quality was good, with a paper tray at the base and six LEDs to show its status. It comes with 4MB of memory, which can be upgraded to 36MB.

PCW DETAILS

★★★★

Price £280.83 (£239 ex VAT)

Supplier Simply 01753 550 333

www.kyocera.co.uk

Good points Good build quality, fast on some tests

Bad points Flagged on PowerPoint, harder to install than others

Conclusion A fair model that doesn't quite manage to win any awards

Lexmark Optra E310

Low end

Lexmark has made its name by consistently supplying good-quality workgroup printers. As such, it looks a bit out of place in this lower-end group, with this model failing to impress in our tests. It was fairly easy to install, although it took us a few clicks to get the driver correctly loaded. Both a printed and an online manual came bundled with this printer, which gave good, detailed information on setting up and using the machine.

Although the E310 looks similar to

some of the other models reviewed, it has a faster 67MHz processor. However, it only comes with 2MB of memory as standard, which may help to explain why it didn't produce the speedier results we were expecting from this faster processor.

It was not too bad when printing the 50-page Word document but suffered when attempting the PDF test. It supports both PCL Level 6 and PostScript Level 2 as standard, which we felt was a big plus at this price.

Quality-wise it was not the best, but if most of your printing is confined to generating text documents this will not be a huge issue.

Paper passes into the printer through a slot in the top, which can handle up to 150 sheets at one time, and out to a tray at the front capable of holding 100 sheets.

PCW DETAILS

★★★★

Price £304.33 (£259 ex VAT)

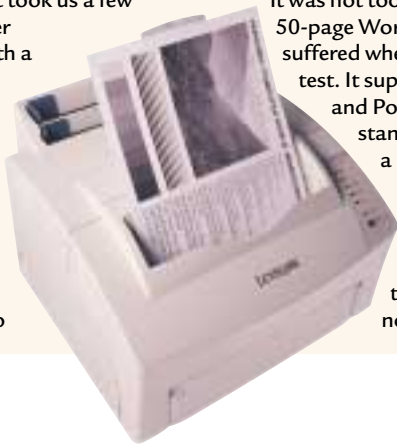
Contact SMC 01753 550 333

www.lexmark.co.uk

Good points Fast processor, both parallel and USB included

Bad points Let down by a lack of memory that crippled the speed

Conclusion A fairly good printer that could have been so much better with a bit more memory



Oki Okipage 6w

Low end This is the cheapest printer on test and, unfortunately, this was reflected in the test results. It comes with a mere 512K of memory, which can't be upgraded. It is not network compatible and does not support either PCL or PostScript. As such, it is not a model that we would recommend for the small-business user, but may still be of interest to someone looking for a cheap personal laser. A toner cartridge only costs £12.99 ex VAT but, at the same time, you only get 1,500 pages out of it.

Unsurprisingly, it didn't fare well in our performance bench mark tests.



Although it was not bad on our PDF test, it didn't cope particularly well with our 50-page Word document. Quality of output was

not the best, but for this price it was not something we expected to be perfect.

The machine looks very basic. Paper feeds from the 100-page paper tray on the top and out through a slot in the bottom. There is only a single power LED on the front and it is not possible to adjust the settings using the panel - we had to use the driver software provided.

Overall, this printer is not a total write-off - it is very cheap after all. We wouldn't recommend it for your business, however, and you'd be better saving up for something more expensive.

PCW DETAILS



Price £139.83 (£119 ex VAT)

Contact Dabs Direct 0800 138 5204
www.oki.co.uk

Good points Low cost

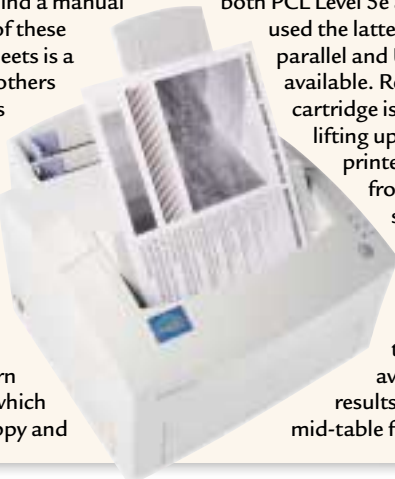
Bad points Poor performance, lack of features

Conclusion This machine is not appropriate for a small business

Samsung ML-5100A

Low end This offering from Samsung features a top-loading paper tray, situated just behind a manual feed slot. The capacity of these could be larger - 150 sheets is a bit stingy compared to others on test here. A rest folds out at the front of the printer to enable the exiting paper to sit in the tray tidily. This will hold up to 100 sheets.

Three lights on the front of the printer indicate its status. To change the printer's setting you'll have to turn to the driver software, which is provided on both floppy and



CD-ROM. This model was very easy to install, with the setup program installing both PCL Level 5e and 6 drivers (we used the latter when testing). Both parallel and USB ports are available. Replacing the toner cartridge is a simple matter of lifting up the top panel of the printer, while a flap at the front allows for a

straight paper path.

The 4MB of memory and 33MHz RISC processor combined to produce fairly average performance results. This model came mid-table for all of the speed

tests, although its image quality was good. Running costs are higher than others featured here, with a 5,000-sheet toner cartridge costing £65 ex VAT.

Overall, this is not a bad printer by any means, but is fairly forgettable when you look at the competition.

PCW DETAILS



Price £233.83 (£199 ex VAT)

Contact Dabs Direct 0800 138 5204
www.samsungelectronics.co.uk

Good points Includes both USB and parallel ports

Bad points Higher running costs

Conclusion An average model

Tally T9308

Low end If you think this printer looks familiar, then you're not alone - this model looks the same and has the same basic specifications as Samsung's and Xerox's low-end offerings. This 4MB printer has a 33MHz processor, which helped it to come just below the others here in the speed tests. All of the speed results were roughly the same, although it was slightly faster on the PDF test. Its best feature, however, was its quality output. Running costs are higher than some of its rivals - £68 ex VAT for a 5,000-page toner cartridge is not the best value.

In terms of printer protocols, the T9308 supports PCL Level 6. We found this model fairly easy to set up,



with the toner easy to load. In contrast to the higher-end Tally printer, drivers came on CD and not floppy disk. It also came with a good printed manual.

Paper is stored in a slot at the top, with a manual feed input in front of it. Three lights indicate the printer's status. Build quality was not as good as others and it felt slightly cheap.

The door covering the toner is restricted from opening too

far by a thin piece of plastic, which could get damaged with prolonged use. This was a fairly average offering - not terrible but there are much better buys here.

PCW DETAILS



Price £287.88 (£245 ex VAT)

Contact Dabs Direct
0800 138 5204
www.tally.co.uk

Good points In common with the Samsung ML-5100A, it has both USB and parallel ports

Bad points Higher running costs

Conclusion There are better buys at the price

Xerox DocuPrint P8EX

Low end

We complete our round-up of the lower-end printers with a by now familiar model. Like the Samsung and Tally, this unit has 4MB of memory and a 33MHz processor. Results were similar to its cousins, with the £239 ex VAT printer managing to complete our performance tests adequately enough but without dazzling us. Again, there are better options available at the price.

We found this model easy to set up. Drivers came on a single floppy disk rather than a CD-ROM. Xerox scored brownie points for including a printer cable with its machine – one of the few



manufacturers to be kind enough to do this. The printer's input tray is vertical and can hold up to 150 pages. Paper is drawn into the printer through this tray and output to a vertical tray at the front of the printer. This can hold 100 pages.

One thing we did not like about the printer was the LEDs – these had pictures rather than text next to them, which was slightly confusing. Toner is very expensive – £75.75 ex VAT for only 5,000 pages. This is above most of the other printers in the low-end section. It supports PCL Level 6 and 5e but not PostScript.

Overall, this is not a machine we would recommend – there are better, cheaper implementations of this particular printing engine available elsewhere in the test.

PCW DETAILS

★★

Price £280.83 (£239 ex VAT)

Contact Simply 01753 550 333

www.xerox-emea.com/xcg

Good points In common with the Samsung ML-5100A, it has both USB and parallel ports

Bad points Higher running costs

Conclusion There are better buys at the price

Epson EPL-N1600

High end

The Epson EPL-N1600, the first of our higher-end printers, boasts a print speed of 16ppm and came second in the PDF test, taking only 207.62 seconds. The Word document was a harder test, with the Epson sliding down to sixth place – and scoring fifth overall for standby performance. Print quality was the major stumbling block for the N1600, placing it tenth out of the high-end printers.

The machine was equipped with 8MB of memory, upgradable to a maximum of 40MB, with a 150MHz RISC VR4300 processor at its heart. Setup proved simple enough, with drivers supplied on CD for Windows



95/98, NT 3.x and OS/2. Unfortunately, there was no quick-setup sheet in the box. The machine offers both parallel and serial connections and can be upgraded to a network printer for £219 ex VAT. The small LCD was functional, but hard to read and the controls underneath were not the most attractive we have seen. The combined toner

cartridge and drum comes in at £87.67 ex VAT and should provide 8,500 pages. Support for PCL Level 5e is included but PostScript comes as an

optional extra. The input and output paper trays have a capacity of 250 sheets.

On the whole, the Epson offered good performance in the speed tests, but was sadly lacking in print quality.

PCW DETAILS

★★★★

Price £699.13 (£595 ex VAT)

Supplier Simply 08707 297 366

www.epson.co.uk

Good points Good PDF performance

Bad points Scored poorly in the print quality test

Conclusion While not a bad printer, there are better alternatives

HP LaserJet 2100

High end

The HP LaserJet 2100 is not as expensive as its big brother, the 4050T, costing just £423 ex VAT. However, the difference in price is reflected in the results. Although the 2100 scored highly on quality and printing from standby, it was poorly let down by its speed on the 50-page Word and PDF documents, coming last in both sections.

Based around the Intel 80960JD processor with 4MB of RAM as



standard, the 2100 can be upgraded to a maximum of 52MB. As standard you'll find connectors for parallel and infrared, with network upgrades starting at £120 ex VAT. The quoted print speed was 10ppm with a maximum resolution of 1,200dpi. A toner cartridge will set you back £80.80 ex VAT and lasts for 5,000 pages. PCL Level 6 and PostScript Level 2 are supported, with drivers for Windows 95/98, NT and 3.1. In the box was a double-sided A2 poster to assist setup.

The parallel port has been neatly hidden away beneath a plastic cover, but this does make it a little hard to find. The printer came equipped with a 250-page input tray and a 150-page output tray, with the option to add a further input tray if necessary. The input tray also

displays how much paper is left. Unfortunately, the 2100 does not have an LCD display, which could make management an issue.

PCW DETAILS

★★★★

Price £497.03 (£423 ex VAT)

Contact SMC 01753 550 333

www.hp.com/uk

Good points Parallel port hidden away, easy to set up

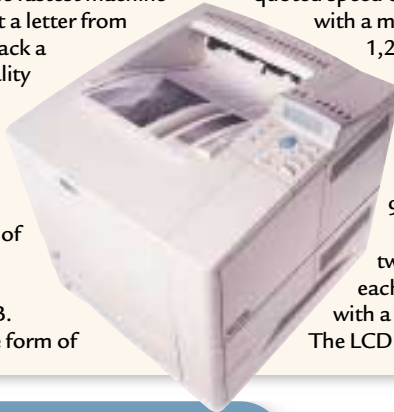
Bad points No LCD, poor Word and PDF performance

Conclusion The 2100 was an admirable contender, but it never really excelled

HP LaserJet 4050T

High end The most expensive machine on test was HP's LaserJet 4050T – for £807 ex VAT you'd expect a good-quality printer and thankfully we were not let down. The HP scored highly in the speed tests, being the fastest machine to wake up and print a letter from standby. It did fall back a little in the print quality tests, coming in seventh place.

The machine itself features a 133MHz RISC chip, coupled with 16MB of RAM as standard, upgradable to a maximum of 200MB. Connectors take the form of



parallel, serial and fast infrared. For an extra £211 ex VAT you can upgrade the 4050T to a network printer. Toner prices start at £80.10 ex VAT and each cartridge should be good for 10,000 pages. The quoted speed of the printer is 17ppm, with a maximum resolution of

1,200dpi. The HP supports PCL Level 5e and 6 as well as PostScript Level 4. In the box you'll find 30 TrueType fonts and drivers for Windows 95/98, NT and 3.1.

The printer features two input paper trays – each holding 250 sheets, with a 300-page output tray. The LCD is backlit, making it easy

to read with a simple-to-operate menu system. The input trays also have a paper-level indicator, making it easy to see how much paper is left.

PCW DETAILS



★★★★★

Price £948.23 (£807 ex VAT)

Supplier SMC 01753 550 333

www.hp.com/uk

Good points Good speed performance, PCL Level 6 and PostScript Level 4

Bad points Most expensive printer on test

Conclusion The 4050T provided the best mix of performance and features

Kyocera FS-1750

High end Kyocera's FS-1750 finished in the middle of the pack overall. For £579 ex VAT, you get a 1,200dpi printer with a claimed speed of 14ppm. Print quality was good, but its speeds printing the Word document and from standby were not as impressive.

A better score on PDF printing was not enough to bump up the Kyocera's overall score.

The printer comes with 8MB of RAM as standard, upgradable to a



maximum of 72MB. The processor is a PowerPC chip clocked to 100MHz. Communications can be made either by the parallel or serial port as standard, with Ethernet options starting at £259 ex VAT. A toner cartridge will set you back £60 ex VAT and should last for 20,000 pages. In the box there are drivers for Windows 95/98 and NT, with drivers for Windows 3.1 and OS/2 available from Kyocera's website. Support for PCL Level 6 and PostScript Level 2 is also included.

The input tray can hold up to 250 sheets of paper and the output tray has an equal capacity. The LCD was easy to read and simple to navigate, which should ensure easy management. No basic setup sheet was provided, but the manual was detailed and easy enough to

follow. We had a couple of problems with paper jams, but these were easy to clear, as releasing a tab allows the internal mechanism to come right out. We also encountered a few paper-feed problems, with two pieces being fed in at a time.

PCW DETAILS

★★★★

Price £680.33 (£579 ex VAT)

Contact SMC 01753 550 333

www.kyocera.co.uk

Good points Reasonable performance

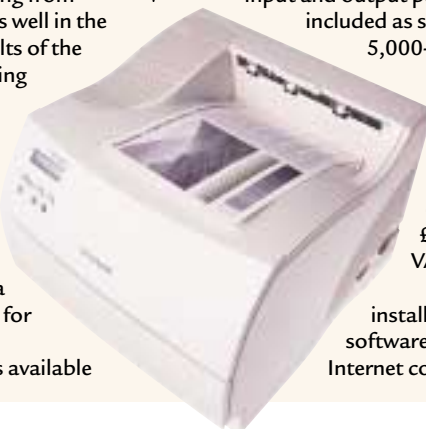
Bad points We encountered a couple of paper-feed problems

Conclusion A good all-round machine, but we did have some problems

Lexmark Optra M410

High end The Lexmark Optra M410 boasts a 12ppm print speed, at a standard resolution of 1,200dpi. Our test showed that the M410 was fast when printing from standby, but did not fare as well in the other speed tests. The results of the print quality test saw it sitting in the middle of the group.

As standard the M410 comes with 4MB of RAM, upgradable to a maximum of 132MB. It can talk to the PC through the standard parallel port or USB, with a network upgrade available for £350 ex VAT (however, a network-enabled M410n is available



for £689 ex VAT). Drivers are available for Windows 95/98, NT, 3.1 and OS/2. The machine comes equipped with PCL Level 6 and PostScript Level 3. The 250-sheet input and output paper trays are included as standard. A

5,000-page toner cartridge costs £74.04 ex VAT with a 10,000-page option coming in at £124.14 ex VAT.

During installation, the software detected our Internet connection and

offered to search for updated drivers.

No setup sheet was included but the manual was very comprehensive, covering everything from basic setup to more detailed operations.

PCW DETAILS

★★★★★

Price £512.30 (£436 ex VAT)

Contact Simply 08707 297 366

www.lexmark.co.uk

Good points Quick to wake up from standby

Bad points Performance in other areas was not up to the same standard

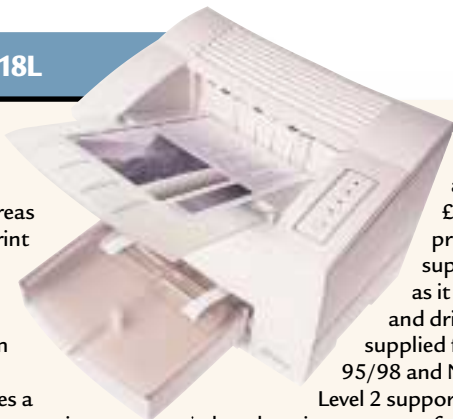
Conclusion A good printer, but just pipped at the post for an award

Minolta PagePro 18L

High end

Minolta's high-end offering performed well in all areas except time taken to print from standby, where it sat in the middle of the field. The quoted print speed was 18ppm at a 1,200 x 600dpi resolution. The 18L uses a combined toner and drum unit that costs £112 ex VAT and should provide 9,000 pages worth of use.

The processor is a Zenographics Zj-RCA chip running at 20MHz, backed up by 2MB RAM, upgradable to a 16MB maximum. The 18L comes with a parallel connector as standard, with an optional



Ethernet connection available for £199 ex VAT. The printer only supports Windows as it is GDI-based, and drivers are only supplied for Windows 95/98 and NT. PostScript Level 2 support is host-based, but there is no support for PCL.

The machine arrived in what seemed like kit form, with quite a lot of parts to assemble. Driver installation was also fairly difficult, as it required a lot of user input. The machine also had no LCD display, instead relying on LEDs with symbols on them that made usability

poor. The unit has input and output trays that can handle 250 pages – but it was quite hard to remove these for filling, which could become annoying over time.

PCW DETAILS



★★★★★

Price £374.83 (£319 ex VAT)

Contact Dabs 0800 138 5204

www.minoltaeurope.com

Good points Excellent performance for the price

Bad points No PCL support, setup was not the easiest

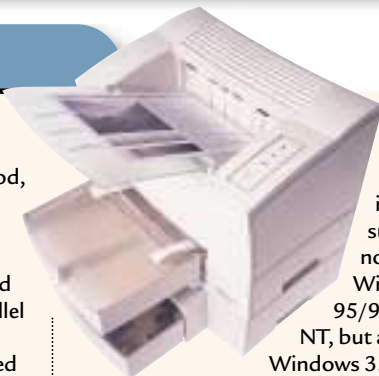
Conclusion If you don't need PCL support and are happy with a GDI printer then the 18L is a good buy

Minolta PagePro 18N

High end

Minolta's PagePro 18N is very similar in design to its smaller sibling, the 18L. Under the hood, however, things are quite different. The 18N uses a 66MHz 403GCX PowerPC processor, combined with 4MB of RAM – which can be upgraded to a 64MB maximum. As well as parallel connectors, the 18N comes with an Ethernet port as standard. The claimed print speed is 18ppm with a maximum resolution of 1,200 x 600dpi.

The 18N uses the combined drum and toner cartridge, as seen on the 18L, notching up 9,000 pages for £112 ex VAT. As well as 250-sheet input and output trays the 18N has an additional 500-page input tray, but again they were fiddly to remove and fill. As the 18N is



not a GDI printer, it supports not only Windows 95/98 and NT, but also

Windows 3.1 and OS/2. PCL Level 6 is provided, with PostScript Level 3 offered as an option. The drivers required a lot of user input during installation, making the whole process less efficient than other models.

The 18N won first place for time taken to print the Word document, taking only 176.82 seconds. PDF and

standby performance were less spectacular, however, with the 18N sitting in the middle of the group on both scores. The print quality test saw the 18N taking fifth place.

PCW DETAILS

★★★★★

Price £780.20 (£664 ex VAT)

Supplier Simply 08707 297 366

www.minoltaeurope.com

Good points Ethernet as standard, good Word performance

Bad points Setup was not the best.

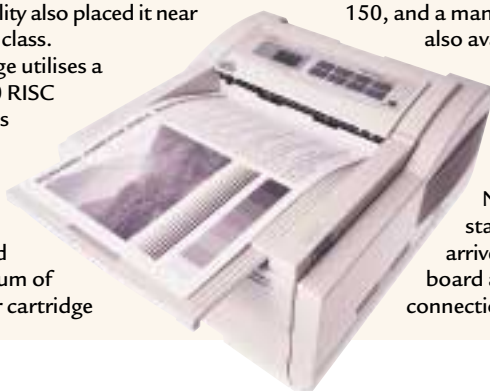
Conclusion Makes up for some of the deficiencies of the 18L but the price tag rises in unison

Oki Okipage 12i/n

High end

The 12i/n is a 1,200 x 600dpi printer with a claimed print speed of 12ppm. Although it was one of the cheapest high-end printers, we found performance a little lacking. It scored highly in the PDF speed tests, but fell down on the Word document and standby time. Print quality also placed it near the back of the class.

The Okipage utilises a 40MHz R3000 RISC chip and comes with 4MB of RAM as standard, although this can be bumped up to a maximum of 36MB. A toner cartridge



comes in at £18.25 ex VAT and lasts for 2,500 pages. However, the drum will need replacing after 20,000 pages, which will set you back £119 ex VAT, with a combined drum and toner unit costing £137.25 ex VAT. The input paper tray can hold 250 pages, with the output catching 150, and a manual feed option is

also available. PCL Level 6 and PostScript Level 2 support is included, with drivers supplied for Windows 95/98, NT and 3.1. As standard the 12i/n arrives with Ethernet on-board and parallel connection is also available.

One problem with installation was that the setup program defaulted to 2MB of memory, not the 4MB we had installed in our machine. This resulted in very slow initial print speeds.

PCW DETAILS

★★★

Price £480.58 (£409 ex VAT)

Contact SMC 01753 550 333

www.oki.co.uk

Good points Network port as standard

Bad points The price reflects the output and performance

Conclusion The price didn't make up for the poor performance and quality

Samsung ML-7000N

High end Samsung's ML-7000N managed to scoop top spot in our print quality test, even though it is only a 600 x 600dpi printer. This is down to Samsung's Resolution Technology, which it claims bumps the printer's output up to a level comparable with those in the 1,200dpi class. Unfortunately, it failed to achieve comparable levels of performance in the print speed tests. The results for the PDF document and standby test were disappointing – while the Word document improved matters, but not to a level expected from a £799 printer.

At the heart of the ML-7000N



beats a 100MHz PowerPC chip, coupled to 12MB of RAM, which is upgradable to a maximum capacity of 68MB. Parallel, serial and Ethernet connections are supplied as standard, with an optional infrared interface also available.

The combined toner and drum cartridge should last 8,000 pages for £80 ex VAT a throw. PCL Level 5e and 6 and PostScript Level 2 are supported, with drivers for Windows 95/98, NT and 3.1.

Shortly after switch-on, the printer produced a very strong smell. This may be a minor point, but it could become an issue in an office environment.

PCW DETAILS

★★★

Price £938.83 (£799 ex VAT)

Contact Dabs 0800 138 5204

www.samsungelectronics.co.uk

Good points Ethernet on board, excellent print quality

Bad points Poor speed

Conclusion If you need the best quality output then the Samsung is a good buy, otherwise you'd be better off looking at other printers in this test

Tally T9116D

High end Tally's T9116D did not fare well against the competition – taking last place for print quality and scoring second to last in both the PDF and standby test. The Tally did manage to pull forward in the Word print speed, but it was not enough. This 600 x 600dpi printer offers a claimed speed of 16ppm. The processor at the heart of the machine is a RISC chip clocked to 125MHz,



backed up by 4MB of RAM, which can be increased to a 68MB maximum. A 5,000-page toner cartridge costs £29 ex VAT but after 40,000 pages you'll need to replace the drum at a cost of £163 ex VAT. Support for PCL Level 6 is included as standard, with PostScript Level 2 offered as an option. Drivers for Windows 95/98, NT and 3.1 are included. The machine comes with two parallel connectors and one serial and it will cost £299 to get it talking on a network.

The CD revolution seems to have passed Tally by, as they supplied their drivers on 11 floppy disks. This took an age to install and after all the disk shuffling we still had problems installing the printer under Windows 98. It is also necessary to manually set the paper size

through the drivers, as it can't detect what paper is loaded into it. The input tray can hold 500 pages, with a 250-sheet output tray. There is also a large LCD display, but it was difficult to navigate as the buttons were hard to press.

PCW DETAILS

★★

Price £645.08 (£549 ex VAT)

Contact Dabs 0800 138 5204

www.tally.co.uk

Good points PCL Level 6 support

Bad points Below average performance

Conclusion Tally did not fair well in the tests and as a result was no match for the competition

Xerox DocuPrint N17

High end Xerox's high-end offering claims a 17ppm print speed at a 1,200 x 600dpi resolution. However, the N17 did not fare that well in our tests. At 62.57 seconds, it took the longest time to print a letter from standby, even longer than every low-end printer as well as the high-end models. Time taken to print the Word and PDF documents placed the printer at the back of the crowd, with similar positioning for the print quality test. For a printer that costs £779 ex VAT, we expect better.

Network capabilities are included as standard with this model. In addition to the Ethernet connection, parallel and



serial are also available.

Toner costs £105 ex VAT for a cartridge that will last 10,000 pages. The machine utilises an Intel i960HD

processor running at 66MHz with 16MB of RAM, which can be upgraded to 104MB. Support for PCL Level 6 and PostScript Level 3 are included, with drivers for Windows 95/98, NT and 3.1.

Installation was simple enough, with the setup utility offering to check for updated drivers on the web. The input tray holds 250 sheets of paper and

there's a 250-page tray to catch its output. The LCD display was a little hard to read at times, as it used symbols rather than text and the control buttons were therefore hard to operate.

PCW DETAILS

★★

Price £915.33 (£779 ex VAT)

Contact Simply 08707 297 366

www.xerox-emea.com/xcg

Good points Simple setup

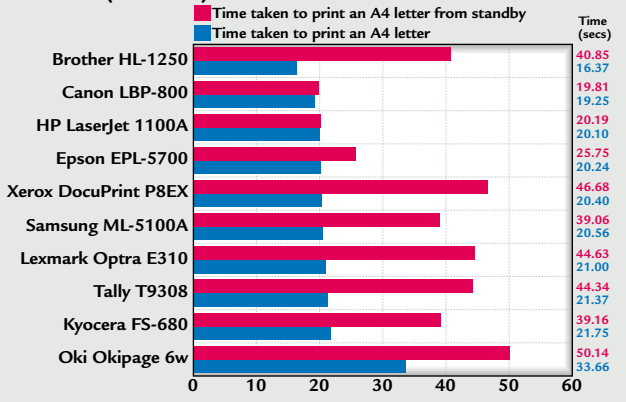
Bad points Poor performance – especially from standby

Conclusion The performance of the N17 in our tests did not justify the machine's price tag

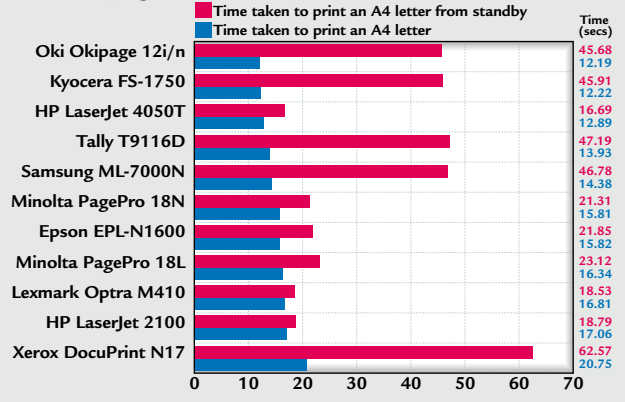
PCW Labs Report



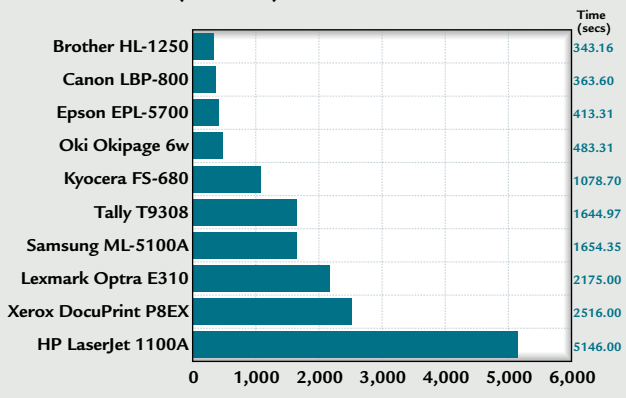
A4 letter (Low end)



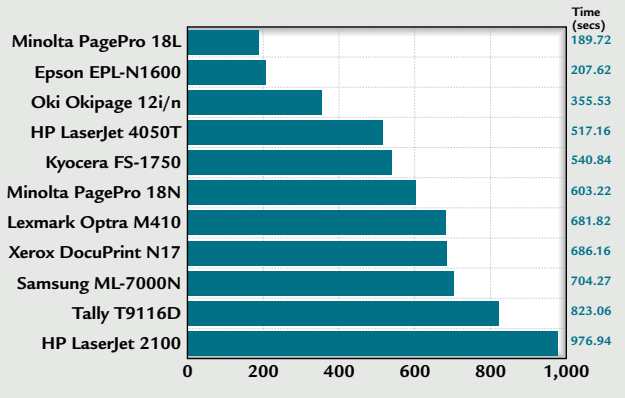
A4 letter (High end)



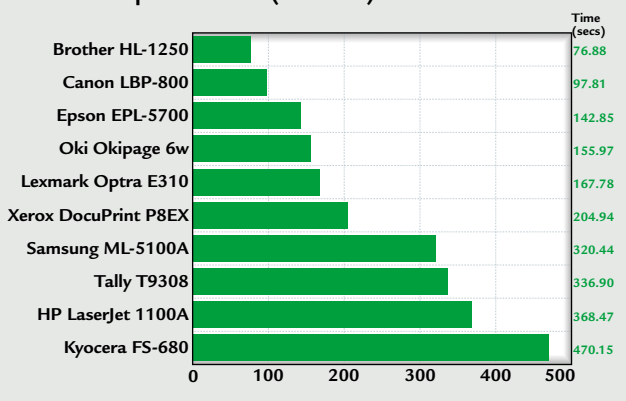
PDF document (Low end)



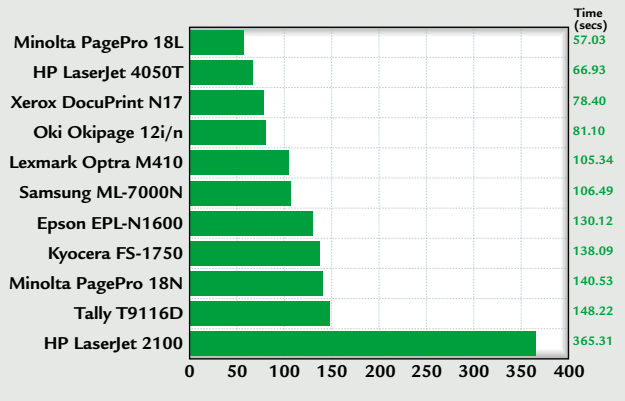
PDF document (High end)



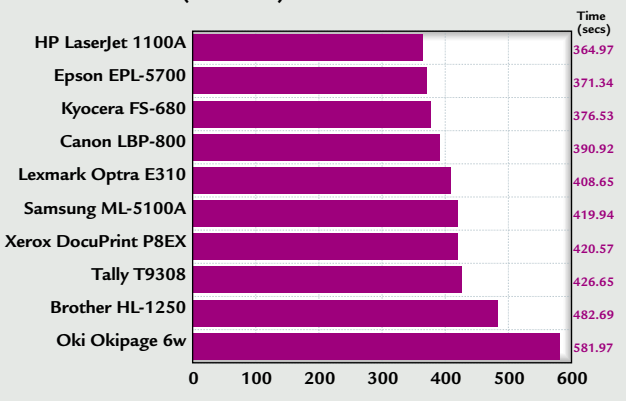
PowerPoint presentation (Low end)



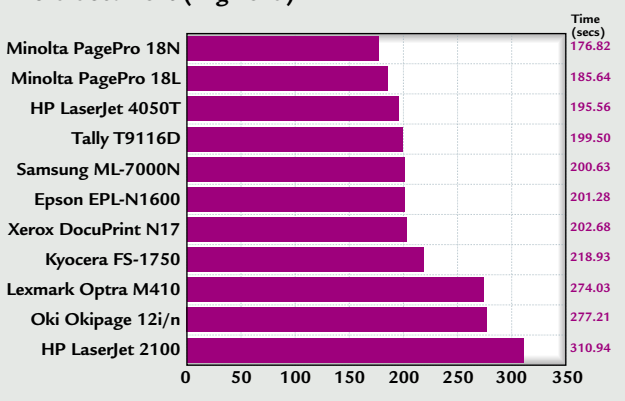
PowerPoint presentation (High end)



Word document (Low end)



Word document (High end)



In all graphs, the shorter the bar, the better the result

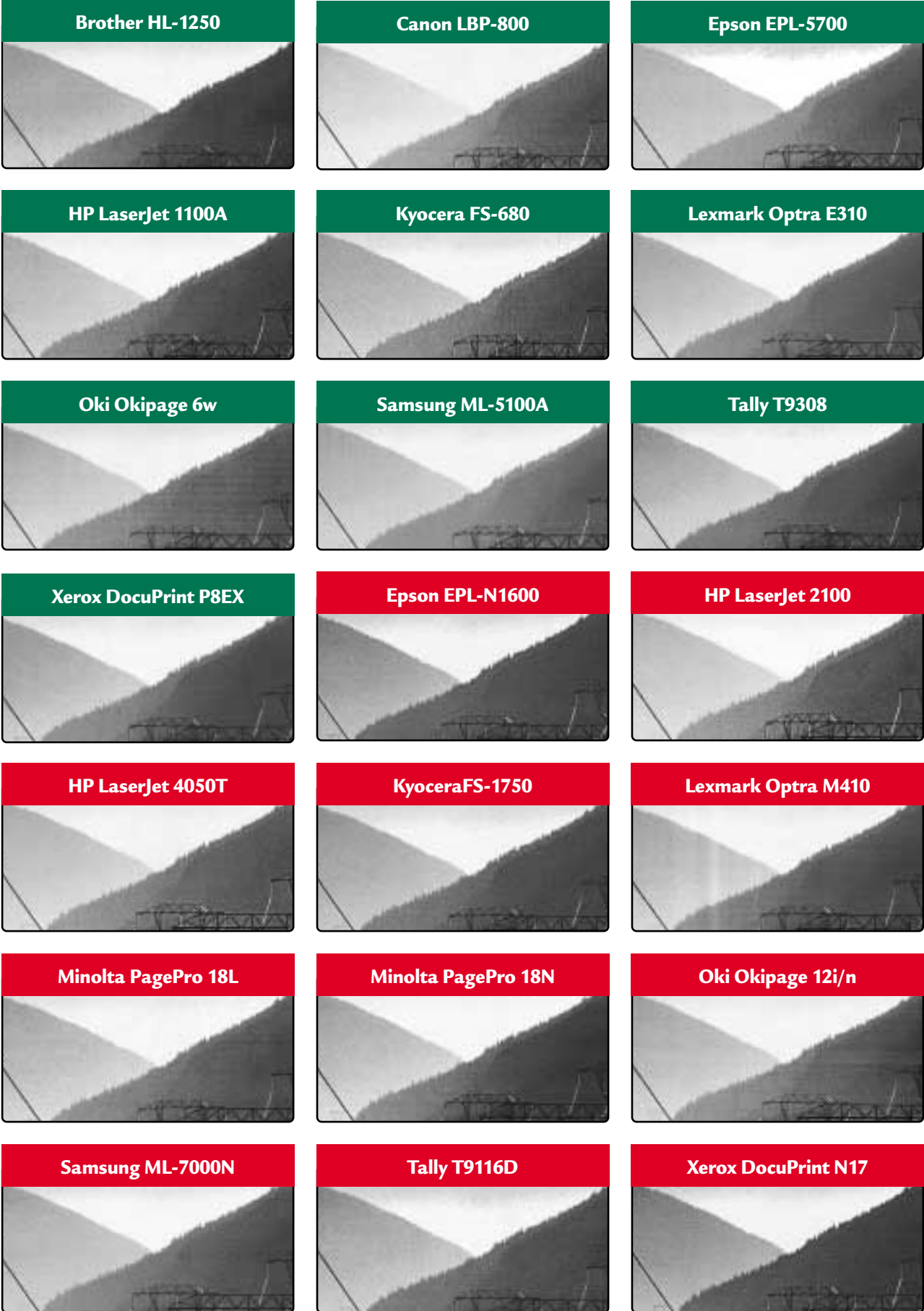
Table of features



MANUFACTURER	BROTHER	CANON	EPSON	HP	KYOCERA	LEXMARK	OKI	SAMSUNG	TALLY	XEROX
MODEL	HL-1250	LBP-800	EPL-5700	1100A	FS-680	E310	6w	ML-5100A	T9308	P8EX
Price ex VAT (inc VAT)	£209 (£245.58)	£186 (£218.55)	£236 (£277.30)	£285 (£334.88)	£239 (£280.83)	£259 (£304.33)	£119 (£139.83)	£199 (£233.83)	£245 (£287.88)	£239 (£280.83)
Manufacturer phone	0845 606 0626	0800 035 3535	01442 261144	0990 474747	0118 923 0789	01628 481500	01753 819819	020 8391 0168	0118 974 2742	0800 454197
URL	www.brother.com	www.canon.co.uk	www.epson.co.uk	www.hp.com	www.kyocera.co.uk	www.lexmark.co.uk	www.oki.co.uk	www.samsung-electronics.co.uk	www.tally.co.uk	www.xerox-emea.com/xcg
Price per page (5% coverage)	0.62p	not supplied	1.2p	not supplied	0.9p	1.42p	1.2p	1.3p	1.247p	1.5p
Supplied memory	4MB	512KB	4MB	2MB	4MB	2MB	512 KB	4MB	4MB	4MB
Maximum memory	32MB	512KB	36MB	18MB	36MB	66MB	512 KB	36MB	36MB	36MB
Ports	Parallel, USB	Parallel	Parallel, serial	Parallel	Parallel	Parallel, USB	Parallel	Parallel, USB	Parallel, USB	Parallel, serial
Cost of network card (ex VAT)	£209	£159	£219	£120	£130	£185	n/a	n/a	n/a	£199
Processor	66MHz RISC	8bit	100MHz RISC VR4300	35MHz Motorola	50MHz PowerPC	67MHz Toshiba	n/a	33MHz RISC	33MHz RISC	33MHz
CONSUMABLES										
Toner cartridge (ex VAT)	£32.99	£60	£60.91	£47	£32.40	£70.81	£12.99	£65	£68	£75.75
Image drum (ex VAT)	£87	n/a	£43.06	n/a	not supplied	n/a	£59	n/a	n/a	n/a
Combined unit (ex VAT)	£119.99	n/a	n/a	n/a	n/a	n/a	£71.99	n/a	n/a	£75.75
OPERATION										
Pages per minute	12	8	8	8	8	8	6	8	8	8
Time to first page (in seconds)	15	17	19	not supplied	20	17	13	15	19	19
Maximum pages per month	15,000	not supplied	12,000	7,000	8,000	10,000	2,500	6,000	6,000	8,000
Toner life (pages)	3,000	2,500	6,000	2,500	3,600	n/a	1,500	5,000	5,000	5,000
Drum life (pages)	20,000	n/a	20,000	n/a	100,000	n/a	10,000	n/a	n/a	not supplied
Engine life (pages)	200,000	not supplied	n/a	not supplied	100,000	100,000	30,000	n/a	100,000	not supplied
LANGUAGES										
PCL Level	6	n/a	5e	5e	5e	6	n/a	5e/6	6	5e/6
PostScript Level	n/a	n/a	2 (optional)	n/a	2	2	n/a	n/a	n/a	n/a
Other	Epson FX-50, IBM Proprinter XL	Canon Advanced Printer Technology	IBM Proprinter, Epson ESC/P	None	IBM Proprinter, DOS, Epson, line	None	Hiper-W -GDI	None	None	None
PAPER										
Paper tray capacity (pages)	250	125	150	125	150	150	100	150	150	150
Output tray capacity (pages)	150	125	100	100	150	100	30	100	100	100
Separate manual feeder?	✓	✓	✓	✗	✓	✓	✓	✓	✓	✗
SOFTWARE SUPPORT										
Windows 95/98	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows NT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windows 3.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OS/2	✓	✗	✓	✗	✓	✓	✗	✗	✗	✗
Number of additional fonts	72	None	None	None	125	75	None	10	46	110
DRIVER OPTIONS										
Media selection	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓
Real-time status display	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓
Smoothing/resolution enhancement	✓	✓	✓	✗	✓	✗	✓	✓	✓	✗
Multiple pages per sheet	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗



EPSON	HP	HP	KYOCERA	LEXMARK	MINOLTA	MINOLTA	OKI	SAMSUNG	TALLY	XEROX
EPL N1600	2100	4050T	FS-1750	M410	18L	18N	12i/N	ML-7000N	T9116D	N17
£595 (£699.13)	£423 (£497.03)	£807 (£948.23)	£579 (£680.33)	£436 (£512.30)	£319 (£374.83)	£664 (£780.20)	£409 (£480.58)	£799 (£938.83)	£549 (£645.08)	£779 (£915.33)
01442 261144	0990 474747	0990 474747	0118 923 0789	01628 481500	01908 200400	01908 200400	01753 819819	020 8391 0168	0118 974 2742	0800 454197
www.epson.co.uk	www.hp.com/uk	www.hp.com/uk	www.kyocera.co.uk	www.lexmark.co.uk	www.minolta-europe.com	www.minolta-europe.com	www.oki.co.uk	www.samsung-electronics.co.uk	www.tally.co.uk	www.xerox-emea.com/xcg
1p	not supplied	not supplied	0.3p	1.48p	1.2p	1.2p	1.2p	1p	1.315p	1.05p
8MB	4MB	16MB	8MB	4MB	2MB	4MB	4MB	12MB	4MB	16MB
40MB	52MB	200MB	72MB	132MB	16MB	64MB	36MB	68MB	68MB	104MB
Parallel, serial	Parallel, infrared, LocalTalk	Parallel, serial, infrared	Parallel, serial	Parallel, USB	Parallel	Parallel, Ethernet	Parallel, Ethernet	Parallel, serial, AppleTalk	Parallel x2, serial	Parallel, serial, Ethernet
£219	£120	£211	£259	£350	£199	n/a	n/a	n/a	£299	n/a
150MHz RISC VR4300	66MHz Intel 80960JD	133MHz RISC	100MHz PowerPC	74MHz Toshiba	20MHz Zenographics Zj-RCA	66MHz PowerPC 403GCX	40MHz RISC R3000	100MHz RISC	125MHz RISC	66MHz Intel i960HD
n/a	£80.80	£80.10	£60	£74.04	n/a	n/a	£18.25	£80	£29	£105
n/a	n/a	n/a	not supplied	n/a	n/a	n/a	£119	n/a	n/a	£157.55
£87.67	n/a	n/a	n/a	n/a	£112	£112	£137.25	n/a	£163	£262.55
16	10	17	14	12	18	18	12	16	16	17
15	not supplied	15	15	17	18	18	9	13	30	not supplied
65,000	15,000	65,000	30,000	20,000	60,000	60,000	15,000	65,000	35,000	65,000
8,500	5,000	10,000	20,000	5,000	9,000	9,000	2,500	8,000	5,000	10,000
n/a	n/a	n/a	300,000	n/a	9,000	9,000	20,000	n/a	40,000	not supplied
not supplied	not supplied	not supplied	300,000	150,000	300,000	300,000	180,000	n/a	500,000	not supplied
5e	6	5e/6	6	6	n/a	6	6	5e/6	6	6
2 (optional)	2	4	2	3	2	3 (optional)	2	2	2 (optional)	3
IBM Proprinter, Epson ESC/P	None	None	IBM Proprinter, DOS, Epson, line	PPDS	None	None	IBM Proprinter III	None	IBM, Epson	Xerox Font Manager
250	250	500	250	250	250	250 (+500 optional)	250	500	500	250
250	150	300	250	250	250	250	150	250	250	250
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	X	X	✓	✓	X	✓	X	✓	X	✓
45	210	30	125	48	None	10	None	10	115	110
✓	✓	✓	✓	X	✓	✓	X	X	X	✓
✓	✓	✓	✓	X	✓	✓	X	X	✓	✓
✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓



Editor's Choice

On the whole we were impressed by most of the printers looked at this month. Unfortunately, each group test has to have a winner and in this case picking one was no easy task. While some machines were quicker off the mark as far as print speed was concerned, others had more of an emphasis on quality of output. We took into account each of the



THE BROTHER HL-1250 COMBINED EXCELLENT FEATURES WITH A LOW PRICE OF £209 EX VAT

test results, as well as value for money and ease of setup and use. It's no good having a really fast unit, if it takes three days to assemble and is a nightmare to manage.



parallel port there was a USB connection and support for PCL Level 6. The times taken to print the PDF document and the letter were impressive, with performance dipping slightly on the Word document and standby tests. After taking everything into account, the HL-1250 is a deserving winner.

Snapping closely at its heels is the Canon LBP-800, which takes the **Highly**

Commended award for low-end printers. The LBP-800 drew our attention by producing remarkable performance for the price (one of the cheapest on test).

It was up near the top in most of the tests, stumbling a little with the Word document but otherwise scoring well. If you can't quite stretch to a Brother HL-1250, the Canon is definitely worth considering.

Finally, the close-but-no-cigar award goes to Epson, which deserves a mention for its EPL 5700. This printer whizzed through the speed tests, but came a cropper in terms of print quality. So if you're more concerned with having a nippy printer, it may just be worth a look.



CANON'S LBP-800 WAS ONE OF THE CHEAPEST ON TEST BUT SHONE WITH ITS PERFORMANCE



thanks to the simple-to-navigate backlit LCD, with everything designed to make the unit easy to operate. The 4050T was

the fastest machine to raise its sleepy head and produce a page from standby, taking only 16.69 seconds, while performance in the other areas was not disappointing. The machine faltered a little in the quality

department, but other than that

we were very impressed.

In the red corner is the bantam weight Minolta PagePro 18L weighing in at a mere £319 and the proud runner up taking this month's **Highly Commended** award. The 18L may not cost much, but in performance terms it



Starting with the low-end printers, the Brother HL-1250 particularly caught our eye and so it takes the **Editor's Choice**

crown. We found it incredibly easy to set up and there was even a video clip on the driver CD in case you got stuck during installation. The combination of features and performance, coupled with the price, were second to none. In addition to the

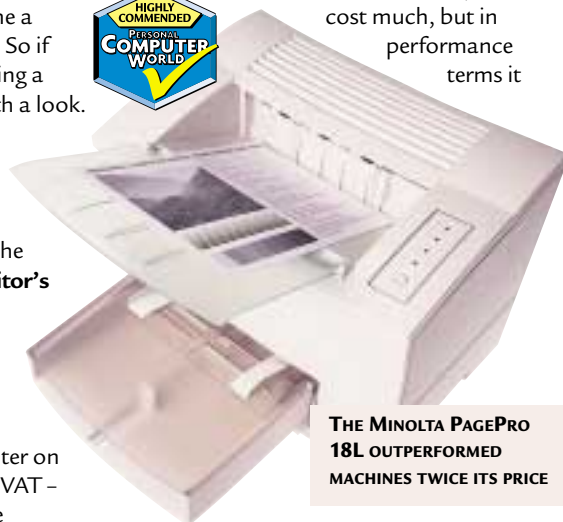


Moving into the big boys' territory with the high-end printers, we saw quite a wide spread in the results. In the blue corner, taking the **Editor's Choice** award, is the

heavyweight HP 4050T. Although it was the most expensive printer on test - £807 ex VAT - the package you get with the HP LaserJet can't be faulted.

Support for PostScript Level 4 and PCL Level 6, loads of RAM and plenty of input trays. Management is a breeze

HP'S LASERJET 4050T WAS THE FASTEST MACHINE TO PRINT FROM STANDBY



THE MINOLTA PAGEPRO 18L OUTPERFORMED MACHINES TWICE ITS PRICE

beat some of the machines that were twice its price, and was the fastest machine in our PDF test. If you are happy with a GDI printer and don't need things like PCL then the 18L is worth a look. It was not the easiest to set up or configure but for £319 we're not going to argue. The 18L was a good little performer and a worthy adversary for the HP 4050T.