



PAGEWIDE XL

THE POWER OF ONE

Technology vs Technology
Color LED vs HP PageWide Inkjet



Color LED vs HP PageWide Inkjet



THE POWER OF ONE

HP PageWide is not a new technology

Over 100 billion pages printed¹



INKJET WEB PRESSES

Proven results in
commercial printing
(since 2009)



BUSINESS PRINTERS

Breakthrough speed,
professional quality
(since 2013)



LARGE FORMAT PRINTERS

Excellence at any media size
(since 2015)



3D PRINTERS

HP MultiJet Fusion™
technology
(since 2016)



HP PageWide Inkjet Technology vs Color LED

HP PageWide Inkjet Technology key advantages



PRODUCTIVITY

- **47% faster color printing speeds²**
HP PageWide Technology prints up to 30 D/min versus Color LED Technology printing up to 16 D/min.
- **11 times faster to get the first page out³**
No warm up time and 20sec. first page out vs. at least 4 min. to warm up and get the first page out in Color LED technology.

PRINT QUALITY AND VERSATILITY



- **One step printing allows better ink drop accuracy⁴**
7 steps needed to print with Color LED. Easier to have issues and defects.⁵
- **Finer details, smoother grayscales, and vibrant color**
Color LED has worse detail accuracy and dull colors⁵.
- **More than 100 media compatibility, up to 40-inch wide**
Color LED fusing limits media compatibility, up to 36-inch wide.⁶



HP PageWide Inkjet Technology vs Color LED

HP PageWide Inkjet Technology key advantages



MAINTENANCE

- **Zero physical contact points to create wear or jams**
+15 contact points⁷ when printing. Easier to produce wear or jams.
- **Minimum maintenance to run, which translates to lower running costs**
Color LED maintenance performed by service/technician⁸
(more time needed and extra cost)

CONVENIENCE AND ENERGY CONSUMPTION



- **Up to 40% more silent**, key for shared office environments.⁹
- **Significantly less heat generated**
Color LED fusing process often require extra ventilation.¹⁰
- **Inkjet technology has x10 lower power consumption¹¹**



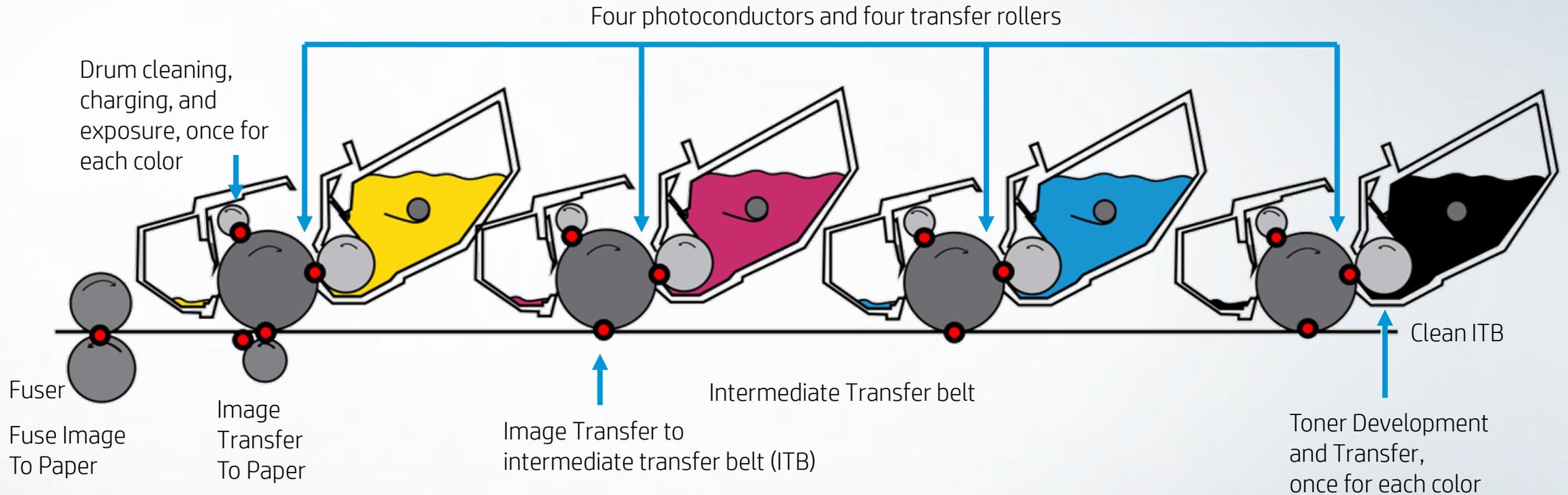
How does each
technology work?



THE POWER OF ONE

Color LED printing is complex

15+ contact points⁷ to create each page



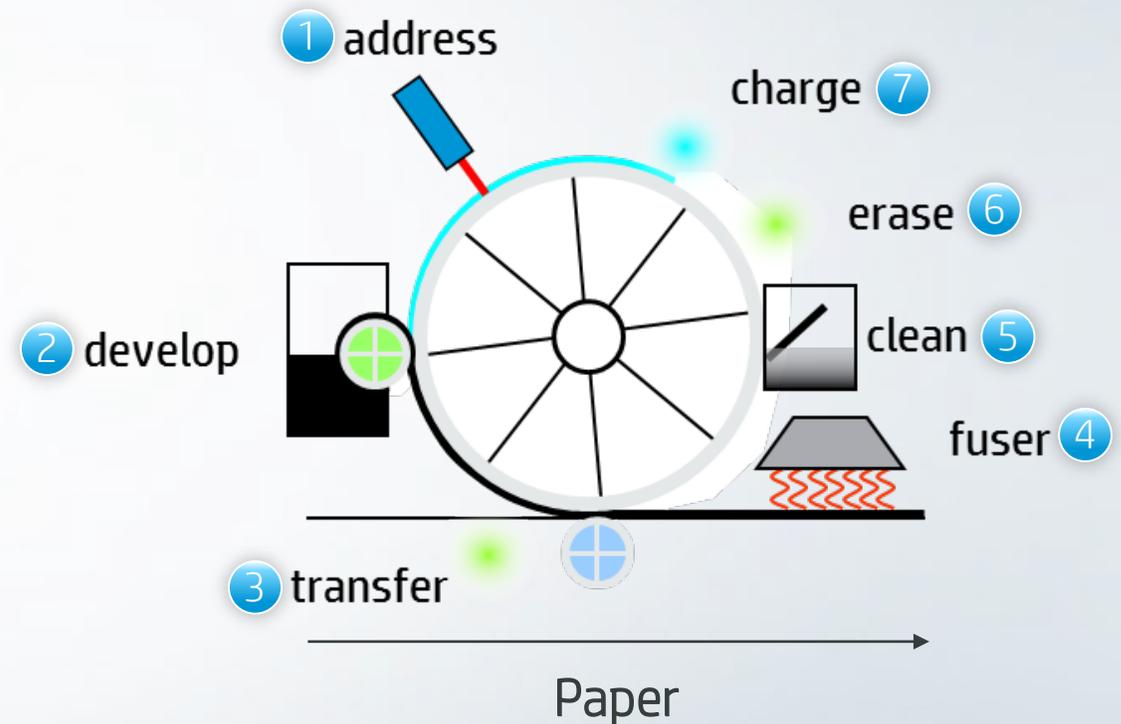
● **Contact points** – Creates wear and consumption of components with every page printed



How does Color LED technology work?

7 steps needed to print: easier to encounter issues and defects

1. The photo-sensitive drum is electrically charged.
2. A 36-in wide LED array is used to charge specific areas, registering the image.
3. Toner particles are attracted to the charged areas and transferred to the paper.
4. Toner is then “melted” (fixed) in the paper’s surface using a fuser. Fusing can be done via:
 - a) Radiant heat
 - b) Heated pressure roller
5. Excess toner is cleaned from the drum.
6. The electric image is erased.
7. Afterwards, the drum is charged again and the process starts over.

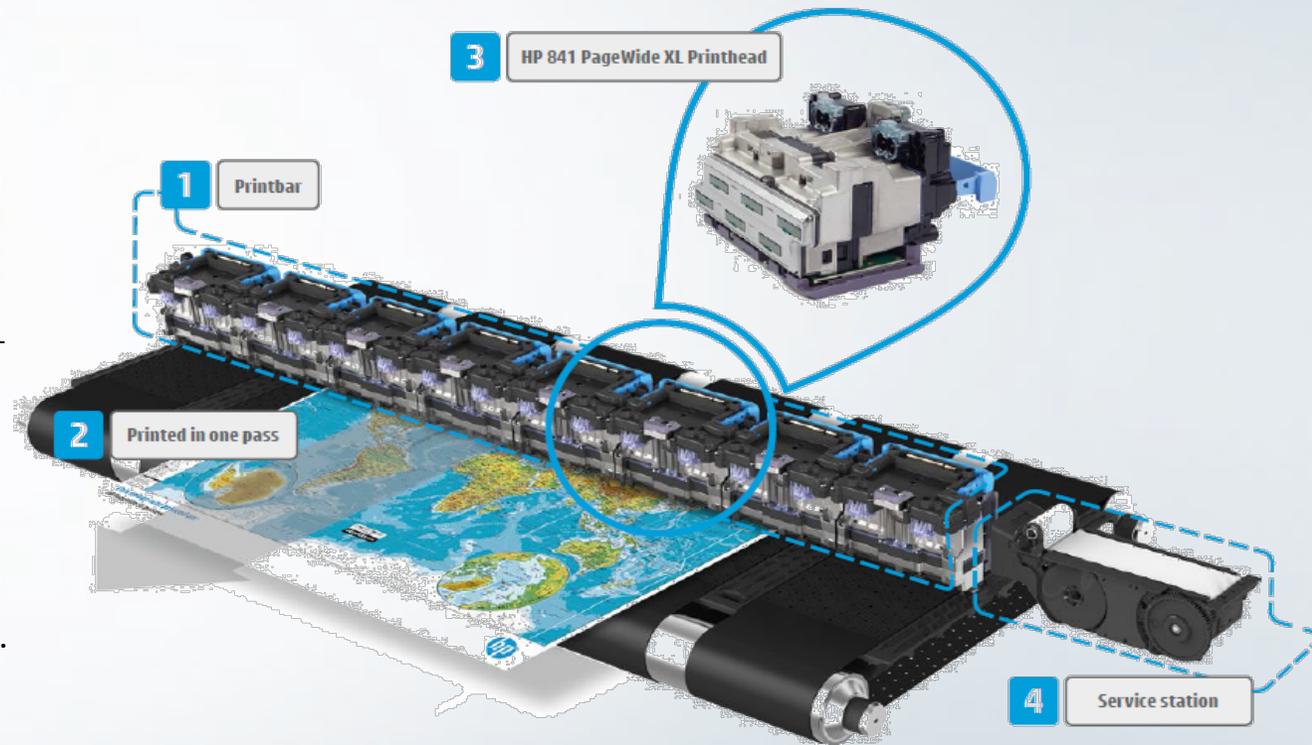


HP PageWide Inkjet printing is simple

Zero contact points to print

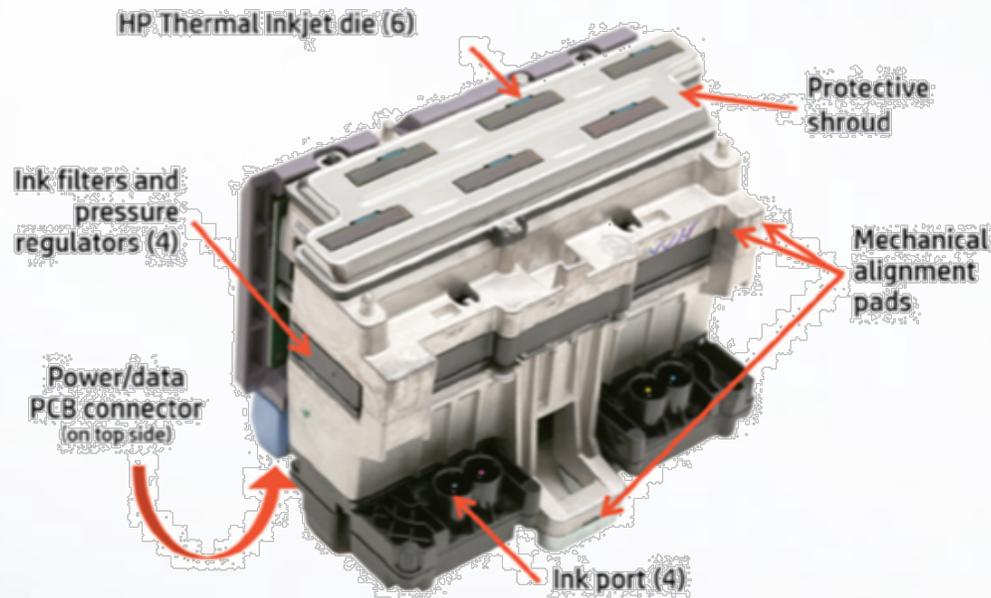
HP PageWide Inkjet printing requires a **single step**:

- HP PageWide XL printers include a stationary 40-inch (101.6-cm) printbar that spans the whole printing width.
- The entire page is printed in one pass, enabling very high printing speeds.
- The printbar is built from 8 identical HP 841 PageWide XL Printhead modules with 4 colors (C,M,Y,K)
- Each printhead drop all four color ink in single pass onto paper through the 202,752 nozzles in the printbar.
- PageWide XL printhead remains stationary while printing.
- Only printing component moving inside device is paper.



How does PageWide Technology work?

The printbar is built from 8 identical HP 841 PageWide XL Printhead modules



Print engine

- HP Thermal Inkjet technology
- 4 – colors (CMYK), HP PageWide Pigment Inks
- 25,344 nozzles per printhead
- 5.08-inch (129mm) print swath
- 1,200 nozzles per inch native resolution
- 6,336 nozzles per color

Printhead Features

- Modular, stackable design for scalable printing solutions
- Built-in ink filtration and pressure regulation
- User replaceable without tools or mechanical adjustments
- Designed for sustained, high-speed printing



Reliability

PageWide Inkjet technology requires minimum maintenance to run, which translates to lower running costs

INKJET

- Inkjet systems are simpler and require fewer moving parts. HP PageWide XL printheads stack together on a single printbar to provide a more compact print zone that gives better control of the media during printing. Most of the printing engine resides in the **printhead**, which is **easily replaced by the user** at the end of its life.
- Inkjet technology requires **minimum maintenance to run**, which translates to **lower running costs**.

COLOR LED

- LED printing systems require many steps to function and all of them must work in perfect synchrony. A failure in any of the steps creates a visible defect on the paper such as vertical white lines, background noise, or a “ghost” of the previous image.
- **Resolving these defects requires system maintenance:** cleaning, developer replacement, photoconductor replacement and more.



Footnotes

[1] Proven HP PageWide Technology powers HP Inkjet Web Presses—currently producing 4 billion impressions monthly—and HP X series business printers.

[2] Conclusion based on the speed comparison of HP PageWide XL 8000 printer printing 30 D/A1 pages per minute in color and monochrome and the comparable printer in the production market using color LED technology based on capable of printing 16 D/A1 pages per minute in color, as specified in the color LED printer documentation.

[3] Conclusion based on the warm up times and processing times comparison of HP PageWide XL 8000 printer and the comparable printer in the production market using color LED that needs less than 4 minutes from power on to be ready to print as specified in the color LED printer documentation.

[4] The dependable print quality, speed, and reliability of HP PageWide printers is made possible by HP Scalable Printing Technology (SPT)—the latest generation of HP Thermal Inkjet technology that employs ultra-precise and proven materials, design rules, and manufacturing processes. SPT brings to printhead manufacturing the benefits of large-scale, precision processes developed for the production of integrated circuits. With SPT, all parts of the printhead, from thin-film integrated circuits to thick-film fluidic structures, are defined using a process known as photolithography, which can define very small structures. The ink passages, chambers, and nozzles in SPT printheads are produced with sub-micron precision to deliver every drop with uniform volume, speed, and trajectory for consistent image quality.

[5] Based on internal HP testing on the HP PageWide XL 5000 Printer compared to a comparable color mid-volume LED printer as of July 2017.

[6] Conclusion based on the comparison of HP PageWide XL printer series width and supported media, and the comparable printer in the production market using color LED technology specifications in the color LED printer documentation.

[7] Contact points create wear and consumption of components with every page printed.

[8] Conclusion based on the comparison of HP PageWide XL printer series technology and maintenance, and the maintenance of a comparable printer in the production market using color LED technology specified in the color LED printer documentation.

[9] Conclusion based on the noise levels comparison published by HP PageWide XL 5100 printer and the comparable printer in the production market using color LED, specified in the color LED printer documentation (35dB vs 60dB(A) in ready mode). Color LED generates up to 65dB of noise when printing and go 60dB when idle, close to the WHO pain threshold of 70dB.

[10] HP PageWide inkjet technology printing process does not require fusing or high temperatures compared to Color LED printing process that requires fusing the toner at very high temperatures, generating significant heat, often requiring extra ventilation.

[11] Conclusions based on internal HP testing for a specific use scenario. Comparable printers using LED technology based on LED printers capable of printing 8 to 13 D/A1 pages per minute and which represent more than 80% of the share of mid-volume LED printers in the US and Europe according to IDC as of April, 2015. For testing criteria, see

hp.com/go/pagewidexlclaims.





PAGEWIDE XL

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