BLI BUYERS LAB 2020 PICK

Ricoh Pro L5160 (Dual CMYK)
Outstanding High Production CMYK
Eco-Solvent/Latex 54"/64" Printer

Introduction

Ricoh introduced the Pro L5160 in mid 2019. Designed to streamline commercial production of indoor and outdoor media, such as window graphics, large format signage, vehicle wraps and customised packaging, the Pro L5160 delivers outstanding quality, productivity and media versatility. A second-generation model, it offers significant advantages over its predecessor and over competitor models.

The main competitor models are the HP Latex 365 and the HP Latex 560. Both HP models were launched in 2016, and like the Pro L5160, they use latex ink technology to print media widths of up to 64 inches / 1.62 metres. The two HP printers share similar specifications, but the HP Latex 560 is faster than the HP Latex 365 and has spindle-less loading.

This battlecard explores the main advantages of the Pro L5160 over the HP Latex 365 and HP Latex 560.

Ricoh Pro L5160 advantages

✔ **White ink applications (USP)**

The Pro L5160 can be configured for five-colour printing* (CMYK+White). Neither of these HP models support white ink. White ink greatly expands the range of print applications: it can be used as a base layer when printing onto transparent or coloured media; it can be used as an intermediate layer, enabling double sided images to be printed onto one side of transparent media; and it can be used as a spot colour for highlights and text.

*Ricoh is planning to launch a six-colour version of the product, the Pro L5160e, in the third quarter of 2020. The Pro L5160e will support orange and green inks in addition to cyan, magenta, yellow and black (CMYK+Orange+Green). The use of orange and green inks will further expand the colour gamut and enable the Pro L5160e to print specific brand colours.

✔ **Piezoelectric printheads and drop on demand technology (USP)**

The Pro L5160 has high precision piezoelectric printheads. The piezoelectric printheads work at a lower temperature, use less energy and are more durable than the thermal printheads used by HP. Rather than a conventional heating element, a low energy piezoelectric crystal creates a pulse which expresses a finely measured droplet of ink.

Because the piezoelectric technology is more responsive than thermal technology, the Pro L5160 is able to express ink droplets of variable size, ranging from 5 pl to 19 pl. Multiple pulses are used to create larger ink droplets. The drop on demand technology enables the Pro L5160 to produce vibrant colour images with dense solids. The thermal printheads used by HP produce fixed size ink droplets of 12 pl. To achieve print of comparable quality, the HP printers use light cyan and light magenta (additional inks) to flood-fill mid tones. This increases ink consumption and cost.

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✔ Wider colour gamut

Ricoh's drop on demand technology and specially formulated second-generation AR inks enable the Pro L5160 to produce graphics of exceptionally high quality. In Ricoh tests, the Pro L5160 demonstrated a wider colour gamut, denser blacks and a more matt finish (less reflective) than either HP model. Ricoh's test results are supported by independent analysis. The Ricoh Pro L5160 was awarded BLI Buyers Lab 2020 Pick award for Outstanding High Production CMYK Eco-Solvent/ Latex 54"/54" Printer. Amongst other advantages, BLI's accreditation references: *"Consistently vibrant, high contrast and photo-like image quality".*

✔ Outstanding productivity

The Pro L5160 is more productive than the HP Latex 365 and the HP Latex 560. HP's brochures show a variety of print speeds for each model. Comparing speeds on a like-for-like basis using comparable quality settings, the Pro L5160 is 47% faster than the HP Latex 365 and 8.5% faster than the HP Latex 560.

Print speed: indoor media

Ricoh Pro L5160 (12 passes):	25 m²/h
HP Latex 560 (6 passes):	23 m²/h → +8.5%
HP Latex 365 (6 passes):	17 m²/h → +47%

✔ Long-life printheads

Ricoh's piezoelectric printheads are highly durable. Unlike thermal printheads, which work at higher temperatures, they do not degrade. To maintain print quality, the thermal printheads used by HP require frequent replacement. Over a five-year life, the HP Latex 365 could require as many as 90 replacement printheads and an HP Latex 560 could require as many as 105 replacement printheads.

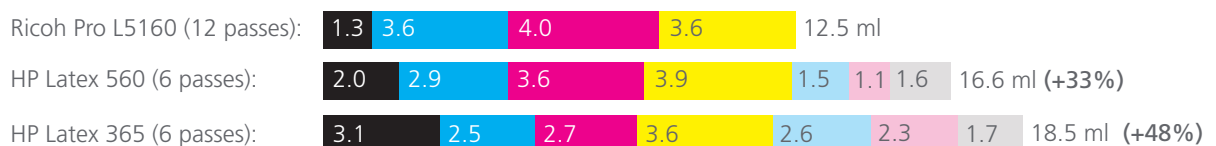|	Ricoh Pro L5160	HP Latex 365	HP Latex 560
Printhead name	Ricoh MH5441	HP 831 Latex	HP 831 Latex
Printhead type	Piezo	Thermal	Thermal
Drop mechanism	Variable	Binary	Binary
Number of printheads	3	6	7
Printhead life	Lifetime[*1]	Approx. 4 months / head	Approx. 4 months / head
Replacement printheads	-	90 over 5 years	105 over 5 years
Replacement cost	-	**€9,000** (90 x €100)	**€10,500** (105 x €100)

[*1] The estimated printhead yield is 2.5 years or more. An auto cleaning system ensures day-one quality is maintained over years of reliable use.

✔ Lower ink consumption

Ricoh's variable drop-size print technology significantly reduces ink consumption. To overcome the limitations of fixed drop-size printing, the HP devices use a primer, CMYK inks, light magenta and light cyan inks. When printing an A0-sized photographic image at comparable quality settings, the HP Latex 365 consumed 48% more ink the Pro L5160, and the HP Latex 560 consumed 33% more ink than the Pro L5160.

Ink consumption: indoor media

Ricoh Pro L5160 (12 passes):	1.3 3.6 4.0 3.6 12.5 ml
HP Latex 560 (6 passes):	2.0 2.9 3.6 3.9 1.5 1.1 1.6 16.6 ml **(+33%)**
HP Latex 365 (6 passes):	3.1 2.5 2.7 3.6 2.6 2.3 1.7 18.5 ml **(+48%)**

✔ Auto cleaning system

The Pro L5160 is easier to maintain than the HP models. Its printheads don't need periodic replacement and the ink lasts longer. In addition, the Pro L5160 has a web-wipe unit that automatically cleans the printheads during operation, eliminating the need for daily maintenance. The web-wipe cartridge lasts approximately 1½ months and is easy to replace.

✔ Better media versatility and lower print temperature

The Pro L5160 supports a wider range of media. Ricoh's AR inks cure at lower temperatures than HP latex inks. At higher temperature settings, transparent and/or thin media, such as fabric, PET, paper and PP can easily cockle or deform. And, at lower temperature settings, inks may not cure and can smudge. In Ricoh tests, the HP Latex 560 was seen to cockle fabric and did not cure images printed on PET. The HP Latex printers also have a bottom-to-top media feed which makes it difficult to feed less rigid materials, such as fabric. The Pro L5160 has top-to-bottom media feed which makes it easier to load fabric and other less rigid substrates.

Media		Ricoh Pro L5160			HP Latex 560		
Type	Name	Temperature	Cured?	Cockling?	Temperature	Cured?	Cockling?
PVC	Lintec GIY-11Z5	90/90°C	Yes	No	112°C (HP profile for PVC)	Yes	No
Fabric	SEIREN SS8000	55/55°C	Yes	No	105°C (HP profile for textiles)	Yes	**Yes**
PET	Kimoto TP-188	90/70°C	Yes	No	90°C (HP profile for polyester)	**No**	No

✔ Advanced colour managment

ColorGATE ColorGATE Rip, an industry-leading workflow and colour management solution, is included with the Pro L5160. Incorporating the latest Adobe PDF Print Engine (APPE) technology, ColorGATE Rip easily handles complex creative demands and ensures high quality colour output across a broad range of media.

✔ Easy to use

The Pro L5160 is easier to use than either of the HP models. It features a tilting 4.3" colour touchscreen operation panel. The panel provides a visual overview of consumable life, media and heater settings. It also provides quick access to a variety of adjustable settings, including media type and feed, head height and alignment, and margin adjustment. Other features which make the Pro L5160 easier to use than the HP models include built in heaters, a roll-to-sheet cutter and a new roll feed mechanism that slides out to make it easier to load heavy rolls.

Countering HP's product claims

## ✔ Vivid print modes (light cyan and light magenta inks)

The HP latex printers use a six-colour print process, CMYK plus light cyan (Lc) and light magenta (Lm). HP claim that the six-colour process reduces graininess in mid tones. It does that by flooding mid tones with light-coloured inks. Whilst the HP printers do exhibit marginally less graininess in halftone images, the difference is negligible when graphics are viewed at a reasonable distance.

With Buyer's Lab rating the half tones produced by the Pro L5160 as either 'Good' or 'Very Good', there is little discernible benefit to using light cyan and light magenta inks

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BLi Pro L5160 test results

Print Mode	Most Productive (6 Pass)	Most Productive (12 Pass)	Highest Quality (32 Pass)
Media	Avery Dennison MPI 3000	Avery Dennison MPI 1105	Avery Dennison MPI 1105
Elephants	Good	Good	Good
Salmon	**Very Good**	**Very Good**	**Very Good**
Volcano	Good	Good	Good
Jewellery	**Very Good**	**Very Good**	**Very Good**
Face	Good	Good	**Very Good**
Fruit	**Very Good**	**Very Good**	**Very Good**

BLi test chart
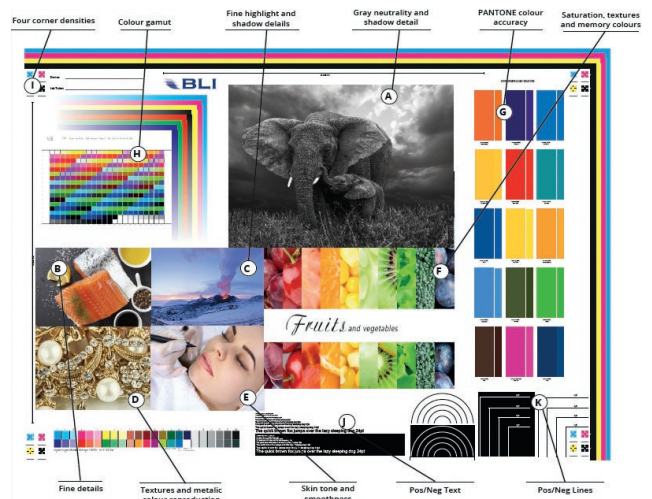
Ricoh Pro L5160-series specifications

GENERAL

Ink Type:	V.2 AR (Aqua Resin) Ricoh Durable Latex ink
Head Type:	Ricoh GEN5 high-speed piezo durable print heads (MH5421)
Print Speed:	Pro L5160: 4-colour mode.
	6 pass: Super Draft 46.7 m2/h
	8 pass: Draft 32.5 m2/h
	12 pass: High Speed 25.0 m2/h
	16 pass: Standard 15.4 m2/h
	32 pass: High Quality 8.7 m2/h
	Pro L5160: 4-colour mode + white.
	6 pass: Super Draft 24.9 m2/h
	8 pass: Draft 18.9 m2/h
	12 pass: High Speed 12.9 m2/h
	16 pass: Standard 8.7 m2/h
	32 pass: High Quality 4.1 m2/h
	Pro L5130: 4-colour mode.
	6 pass: Super Draft 41.4 m2/h
	8 pass: Draft 28.9 m2/h
	12 pass: High Speed 22.3 m2/h
	16 pass: Standard 13.8 m2/h
	32 pass: High Quality 7.8 m2/h
	Pro L5130: 4-colour mode + white.
	6 pass: Super Draft 22.2 m2/h
	8 pass: Draft 16.9 m2/h
	12 pass: High Speed 11.6 m2/h
	16 pass: Standard 7.8 m2/h
	32 pass: High Quality 3.7 m2/h
Resolution:	450dpi, 600dpi, 900dpi, 1200dpi
Dimensions (W × D × H)	Pro L5130:
	3050mm x 1000mm x 1500mm
	Pro L5160:
	3300mm x 1000mm x 1500mm
Weight:	Pro L5130: less than 360kg
	Pro L5160: less than 380kg
Power Source:	AC220-240V 16A 50/60Hz x 2lines
Power Consumption:	Less than 6000W
	Sleep : Less than 5.35W
	Off : Less than 0.5W
Interface:	Ethernet (100BASE-TX/1000BASE-T
Operation Panel:	4.3inch uWVGA (Color touch panel+ Hard keys)
	Display Languages : Japanese, English, German, French, Italian, Spanish, Dutch, (European) Portuguese, Russian, Korean

INK SET

Ink Set Combinations:	4-colour mode (CMYK)
	5-colour mode (CMYK+White)
	6-colour mode* (CMYK+Orange+Green) [*Pro L5160e, available in 3rd quarter 2020]
Droplet Size:	5pl
Ink Capacity:	4-colours: CMYK
	600ml or 1200ml (2 cartridges for each colour)
	4-colours: CMYK
	600ml or 1200ml (1 cartridges for each colour 4 cartdriges for White)
Ink Capacity Types:	600ml Regular Cartridge 1200ml High Volume Cartridge

MEDIA

Media Options:	Wide ranging media compatibility which includes thin coated paper, Synthetic Paper, PET, tarpaulin, weatherproof PVC, window film, polyester, canvas and cotton.
Curing Time:	Fast curing for secondary processing such as lamination thanks to "IR" Infrared drying-heater system on board.
Curing Method:	3 way (Pre-Print-Post) Heater + IR Heater
Maximum Paper Width:	Pro L5130: 1361mm
	Pro L5160: 1615mm
Maximum Media Width:	Pro L5130: 1371mm
	Pro L5160: 1625mm
	Minimum 297mm
Media Weight:	55kg or less
Media Feed Length:	Maximum 300m or less
Roll Outside Diameter:	3 or 2 inches
Head Height Adjust:	1.8mm(default), 2.3mm, 2.8mm, 3.8mm
Margin Setting:	Default: 15mm at each sides
	Min: 5mm at each sides

PC SPECIFICATIONS - SYSTEM REQUIREMENTS

Operating systems 64 bit recommended	Microsoft Windows 7 (Professional, Enterprise, Ultimate)
	Microsoft Windows 8 (Pro, Enterprise)
	Microsoft Windows 10 (Pro, Enterprise) Microsoft Windows Server 2008 R2 Microsoft Windows Server 2012 Microsoft Windows Server 2016
	(Apple Mac OS X 10.5.2 or later with Parallels Desktop 4.0 or later for Mac)
Minimum hardware requirements:	CPU: Dual Core2GHz or later
	RAM: ≥4 GB
	Free disk space: 10 GB
	HDD more than 500GB
	Display resolution: 1280 x 1024
Recommended for using one printer:	CPU: Intel i5 / AMD Dual-Core 2 GHz+
	RAM: ≥8 GB
	Free disk space: 40 GB
	Display resolution: 1280 x 1024
Recommended for using multiple printers:	CPU: Intel i7 / AMD Ryzen 5/7 3 GHz+
	RAM: ≥16 GB
	Free disk space: 80 GB SSD
	Display resolution: 1280 x 1024
Installation and operation:	USB port 1, DVD drive is required, LAN adapter, TCP/IP for network access required
Interfaces:	Parallel, Ethernet, TCP/IP, USB, Serial, FireWire, TWAIN

RIP - AND PRINTING SOFTWARE

ColorGATE Productionserver (PS) (Professional and advanced colour management - in bundle with mainframe)

Features:	High-quality modular components
	Optimal color rendering
	Consistency of reproduction at any time
	Maximum productivity
	Intuitive control concept and user interface Utilizes the latest Adobe PDF print engine

ENVIRONMENTAL INFORMATION

Environmental:	New V.2 aqueous durable (latex) inks have very low emissions of VOCs (volatile organic compounds) and lack of odour requiring no ventilation.

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PRODUCT CERTIFIED FOR LOW CHEMICAL EMISSIONS
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