

Field Test Report

A Comprehensive Keypoint Intelligence Laboratory Evaluation

Roland DG TrueVIS VG-640

64-Inch Wide Format Printer **Dual-CMYK Eco-Solvent Ink**





OUR TAKE

A versatile selection for print shops requiring quick turnaround of their large format print jobs, the Roland DG TrueVIS VG-640 in its dual-CMYK ink configuration performed admirably during its BLI field evaluation. The most productive print speeds clocked in at better-than-average among its peers, while the highest quality print setting was the fastest recorded – by more than 31 percent over the next fastest device, implying that higher quality output won't result in undue slowdown. The VG-640 was cited for producing bright, well-saturated colors, as well as smooth skin tones with very good highlight details and contrast on several of BLI's test targets, while also delivering an average Delta E00 measurement of 5.07 across 15 corporate PANTONE colors at the high speed setting. The Roland VG-640 also yielded extremely accurate dimensional stability and

color consistency during the multi-panel wallpaper test segment, ensuring repeatability when printing multiple panels for side-by-side display. Notable in the usability category, the complimentary Roland VersaWorks Dual RIP provided intuitive operation for diverse tasks such as job tiling and nesting; job queue and ink consumption monitoring; and the ability to readily modify process and PANTONE colors. Among other noteworthy features, the TrueVIS VG-640 boasts a standard take-up reel for unattended printing; an ink pouch replacement system that reduces overall waste; and remote printer monitoring via iOS and Android devices. The 64-inch width Roland DG TrueVIS VG-640, which also comes in a 54-inch version, is a solid choice for indoor and outdoor large format print applications.





BENEFITS

Above-average productivity at all quality settings; fastest speeds measured at the highest quality setting

Very good PANTONE color matching capabilities

Straightforward print job submission, job monitoring and color editing via complimentary Roland VersaWorks Dual RIP; easy media management via Media Explorer tool

Environmentally friendly 500-ml. ink pouch replacement system eliminates plastic cartridge disposal and waste

Unattended print runs facilitated by standard take-up system

LED lights illuminate printing process and turn red when a service call or error occurs

ADVANTAGES

High speed setting yields neutral grays, good shadow details and smooth skin tones earning very good ratings for several images

Exceptional dimensional stability leads to highly accurate multi-panel printing

Remotely access control panel operations and monitoring via Bluetooth enablement on either iOS or Android

Remaining media length counted down; "print memo" length-tracking capability

Integrated automatic cutter

LIMITATIONS

User intervention required to remove media edge clamps before performing auto-cut

Basic control panel design lacks one-touch functionality seen on competing devices; vague remaining ink indication

Lacks roll media lift apparatus to assist with loading

Accounting information unavailable within job log

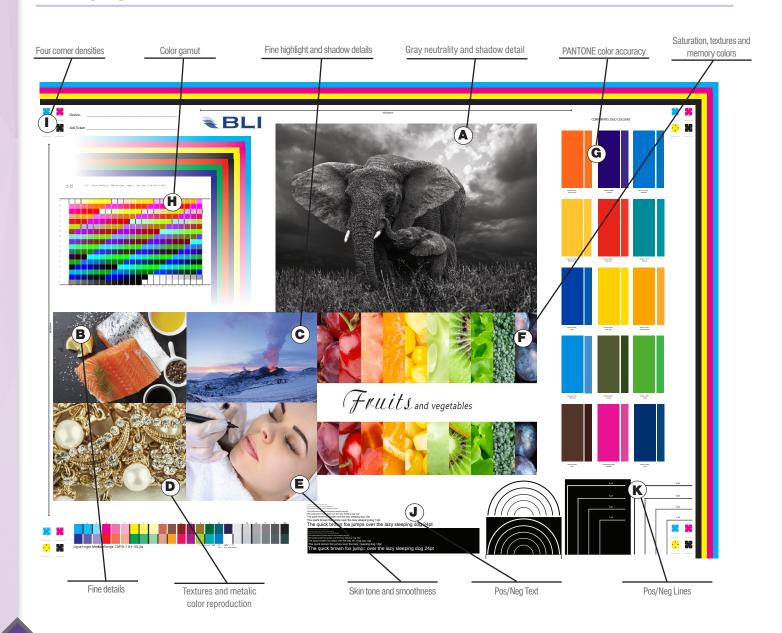


MAGE QUALITY



Halftone Images	***
Color Accuracy	****
Color Gamut	***
Multi-Panel Wallpaper Consistency	****

BLI TEST CHART





A HALFTONE IMAGES



Images	MPI 3000: Most Productive	MPI 1105: Most Productive	MPI 1105: Highest Quality
Elephants	Very Good	Good	Good
B Salmon	Good	Good	Good
© Volcano	Good	Good	Good
D Jewelry	Good	Very Good	Good
E Face	Very Good	Very Good	Excellent
F Fruit	Very Good	Very Good	Very Good

Halftone image quality was assessed using BLI's proprietary A0-size wide format test target that comprises six high quality color/black-and-white halftone images. The test target was printed at the most productive speed/quality setting that produced overall quality without visible banding on both Avery Dennison MPI 1105 and MPI 3000 media. For the Roland DG TrueVIS VG-640 dual CMYK device the high speed 4 pass setting was selected for both media, as was the "Sign & Display" Color Management RIP preset. The target was also printed on MPI 1105 media at the high quality 8 pass setting. Each of the six images was cut from the larger target and visually appraised for color accuracy, brightness, sharpness and contrast by two technicians at a distance of ten feet for the MPI 3000 media and at a distance of two feet for the MPI 1105 media.

Test Results

- (A) On the Avery Dennison MPI 3000 media, the elephant image appeared neutral gray with good shadow details and average contrast.
- **B** The salmon image was light overall and displayed gray neutrality with average contrast and details on both media types.
- © The volcano image exhibited average contrast and lacked shadow detail on both media types.
- **D** The jewelry image displayed above average sharpness and smoothness on the MPI 1105 media.
- The facial image consistently displayed smooth skin tones with very good highlight details and contrast under all conditions tested.
- **F** The fruit image consistently displayed bright, well-saturated colors with good contrast.



PANTONE CORPORATE COLOR ACCURACY



AVERY DENNISON MPI 1105: MOST PRODUCTIVE (HIGH SPEED 4 PASS)

PANTONE	165 C	2685 C	285 C	123 C	485 C	321 C	293 C	109 C
Color	Home Depot	Cadbury	Walmart	McDonalds	Coca Cola	Siemens	IKEA	IKEA
ΔΕ00	6.62	8.04	4.75	4.95	3.85	4.28	4.67	5.38
PANTONE	137 C	279 C	574 C	361 C	476 C	RHOD RED C	294 C	Average
Color	Veuve Cliquot	Microsoft	Harrods	FedEx	UPS	T-Mobile	Ford	ΔE00
ΔΕ00	5.78	6.85	4.38	4.04	3.16	5.26	3.98	5.07

AVERY DENNISON MPI 1105: HIGHEST QUALITY (HIGH QUALITY 8 PASS)

PANTONE	165 C	2685 C	285 C	123 C	485 C	321 C	293 C	109 C
Color	Home Depot	Cadbury	Walmart	McDonalds	Coca Cola	Siemens	IKEA	IKEA
ΔΕ00	6.32	5.46	5.39	5.3	4.72	4.47	3.76	4.79
PANTONE	137 C	279 C	574 C	361 C	476 C	RHOD RED C	294 C	Average
Color	Veuve Cliquot	Microsoft	Harrods	FedEx	UPS	T-Mobile	Ford	ΔE00
ΔΕ00	5.65	7.29	4.35	4.57	3.23	6.13	3.63	5.00

The VersaWorks Dual RIP color management setting "Sign & Display" was used for PANTONE color accuracy analysis

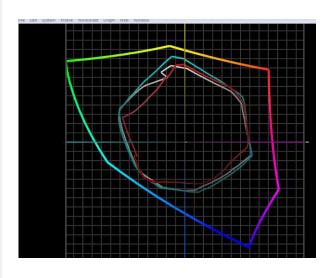
The average Delta E00 across the 15 corporate colors measured 5.07 when printed at the most productive high speed 4 pass setting. The highest quality 8 pass setting produced an average Delta E00 measurement of 5.00.

Three of the 15 corporate colors printed on the dual CMYK ink Roland VG-640 printer measured less than 4.0 Delta E00 units at both the high speed and high quality settings.



COLOR GAMUT





Media: Setting	Graphic Color Representation	Colour Gamut (CIE) Volume
Avery Dennison MPI 3000: Most Productive	White	424,296
Avery Dennison MPI 1105: Most Productive	Cyan	465,315
Avery Dennison MPI 1105: Highest Quality	Red	332,943

Compared against Adobe RGB(1998) color space (multi-color graph)

The two color gamuts produced by the Roland TrueVIS VG640 at the most productive settings on the Avery Dennison MPI 3000 and 1105 media are considered average among the devices tested. However, the highest quality setting produced a color gamut that is notably smaller than the average for devices tested.

DENSITY

AVERY DENNISON MPI3000: MOST PRODUCTIVE (HIGH SPEED 4 PASS)

	Top Left	Top Right	Bottom Left	Bottom Right
Cyan	1.46	1.48	1.47	1.47
Magenta	1.33	1.37	1.30	1.36
Yellow	0.91	0.91	0.91	0.92
Black	1.86	1.82	1.85	1.84

AVERY DENNISON MPI1105: MOST PRODUCTIVE (HIGH SPEED 4 PASS)

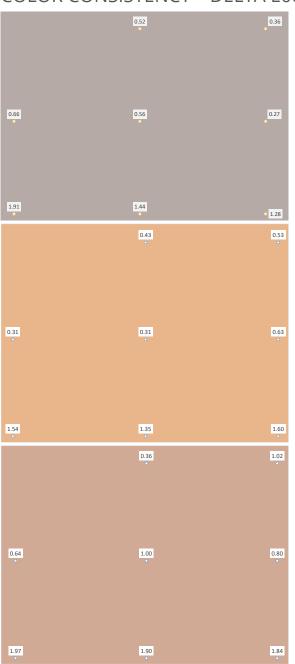
	Top Left	Top Right	Bottom Left	Bottom Right
Cyan	1.57	1.61	1.60	1.58
Magenta	1.41	1.42	1.42	1.42
Yellow	0.98	0.99	0.99	0.99
Black	1.98	2.09	2.02	2.00



AVERY DENNISON MPI 1105: HIGHEST QUALITY (HIGH QUALITY 8 PASS)

	Top Left	Top Right	Bottom Left	Bottom Right
Cyan	1.35	1.36	1.34	1.38
Magenta	1.30	1.32	1.31	1.31
Yellow	0.94	0.94	0.93	0.93
Black	1.55	1.55	1.53	1.53

COLOR CONSISTENCY - DELTA E00 ACROSS PAGE



GrayAverage 0.88 Maximum 1.91

Skin Tone 1Average 0.85
Maximum 1.60

Skin Tone 2

Average 1.19 Maximum 1.97

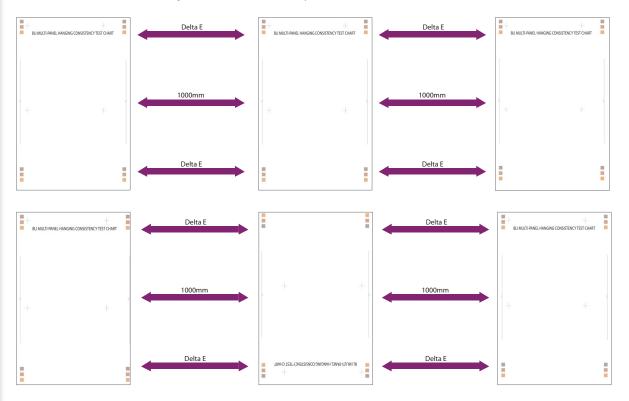
Color consistency was assessed by comparing the top left corner against eight other locations on three A0-size targets printed on Avery Dennison MPI 1105, each target comprising a different neutral solid color. The Delta E00 was measured using an XRite eXact spectrophotometer.



MULTI-PANEL WALLPAPER CHART: COLOR AND LINE CONSISTENCY



To assess the consistency of color and line output when producing a wall hanging or other multi-panel artwork, BLI printed a series of six targets each 6.5 feet in length. Delta E color differences were measured on the panels' adjoining edges, and the corresponding 1 meter length lines were measured for accuracy with a micrometer. The panels were assessed with and without rotation as seen below.



	Maximum Delta E00 On Panels in Portrait Orientation	Maximum Delta E00 On Panels in 180° Orientation
Neutral Gray Top	0.82	0.77
Neutral Gray Bottom	0.79	0.66
Skin Tone 1 Top	1.37	0.98
Skin Tone 1 Bottom	0.89	1.18
Skin Tone 2 Top	0.75	1.09
Skin Tone 2 Bottom	0.34	0.95
Line Measurement Accuracy – Maximum Difference Between Panels (in mm)	0.18	0.06

Maximum color variation measured 1.37 Delta E units on non-rotated panels and 1.18 on the rotated panels.

Maximum one meter line variation from panel to panel measured 0.18-mm. for non-rotated panels and 0.06-mm. for rotated panels.

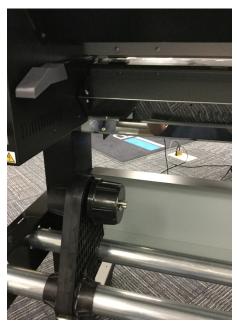


USABILITY

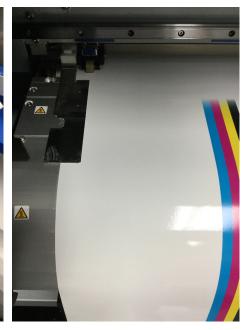


MEDIA HANDLING









Media loading is a straightforward process, with the left side of the core loaded first at the rear of the device followed by sliding and fitting the opposite core holder in place on the right side. There are two metal bars directly beneath the end caps that a roll can be rested on before loading. For added convenience, the VG-640 has media levers located at both the front and rear of the device. The Roland VG-640 has an automatic cutter, which is more convenient than performing a cut manually. However, the two media clamps must be removed before cutting and then reinserted once the cut is made.



The take-up system, which comes standard with the TrueVIS VG-640, enables multiple jobs to be readily collected onto a core facilitating unattended print runs.



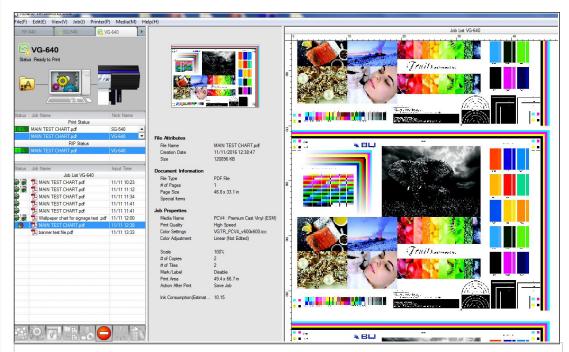
The VG-640 enables up to eight user-named presets to be configured at the control panel. Each is media-dependent and contains up to 16 different device settings that optimize print quality, thereby eliminating the need to adjust these each time a roll is loaded.

Conveniently, once a roll is loaded, its length can be set in the control panel, thus alerting users as to how much media remains during the print process.

The "print memo" control panel selection, when selected, will print the remaining length on the edge of the roll so that users have an indication of the remaining amount once the roll is removed. This is a handy feature, especially in environments where multiple rolls are being used.

DEVICE MANAGEMENT AND MONITORING

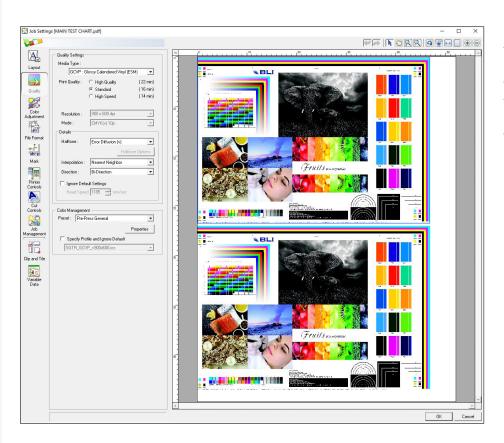




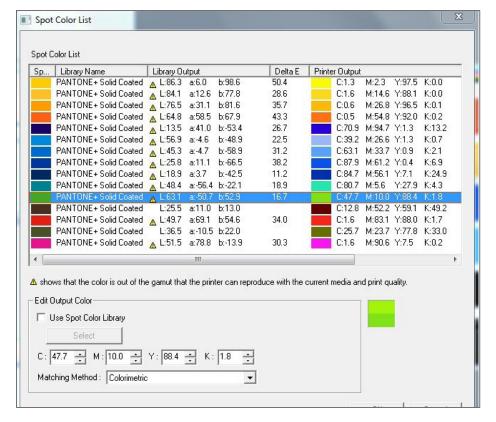
The Roland VersaWorks Dual RIP software comes standard with the VG-640. Precise print, RIP status and job properties are provided for each networked Roland device. BLI found this software intuitive to navigate, and expects it will be readily understood by all operators.







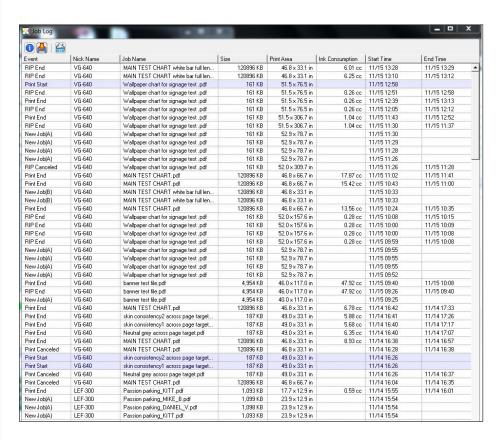
Detailed settings – layout, quality, color adjustment, file format, mark, printer controls, cut controls, job management, clip and tile and variable data – can be applied in the RIP's clearly labeled tabs by clicking on a specific job in the VersaWorks Job List.



The VersaWorks Dual RIP features built-in PANTONE libraries as well as others from which users can modify specific colors for more accurate matching.







The VersaWorks Job Log provides comprehensive job information that includes print area, print time and total ink consumed for each print job, though cost information is not included.



Basic ink, media, and device information is provided in Printer Status.





The unit's control panel is basic and features two lines of text and nine buttons. Common selections for media advance and cut, printhead cleaning, nozzle check, and heater adjustments are located several layers deep in control panel sub-menus. While printing, the panel displays the media width and print status.

The Roland VG-640 is Bluetooth enabled, giving users remote access to perform control panel functions from iOS and Android devices.

MAINTENANCE AND INK





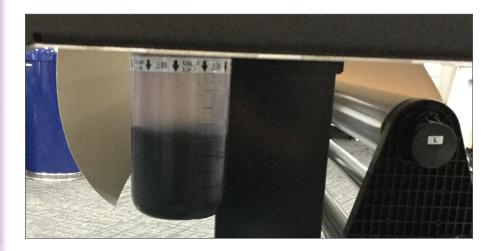


Rather than replacing actual ink cartridges, the Roland VG-640 has an ink pouch replacement system, which requires a new pouch be loaded into its respective horizontal plastic tray housing once the old pouch is depleted. This is a more environmentally-friendly solution since only the pouch is discarded while the plastic housing is retained; however, it's more time consuming than simply replacing a cartridge. Although the unit can be set to "continue printing when pouch is out," the unit must be paused when a pouch needs replacing, thus not permitting ink "replacement-on-the-fly." Ink pouches come in one size, 500 ml.



For optimal print quality, Roland recommends printing a daily nozzle check pattern that is initiated in the function menu of the control panel. Three levels of printhead cleaning are available – normal, medium and powerful. The company also recommends removing the ink tray and gently shaking it if colors appear uneven on output.

A bidirectional alignment, which is initiated in the control panel menu, is recommended when a new media roll is installed. This simple process, which takes only a few minutes, prints two test patterns after which the operator selects the number of the pattern that's optimally aligned and enters that number at the panel.



The unit's waste ink tank is easily removable, requiring the operator to simply unscrew it from the bottom of the printer, empty and replace. Users will be prompted with an "empty drain bottle" control panel message.

Roland provides a cleaning kit consisting of cleaning swabs and solution for manually cleaning specific areas of the device, namely around the printheads and wiper. Initiated at the control panel or from a mobile device, a manual cleaning is recommended monthly or when quality defects are noted that an automatic cleaning doesn't rectify.

Printhead wipers, the wiper tray pad and the cutter blade are user-replaceable, and their replacement is initiated at the control panel.

Daily internal maintenance is conducted automatically as long as the VG-640 is turned on.



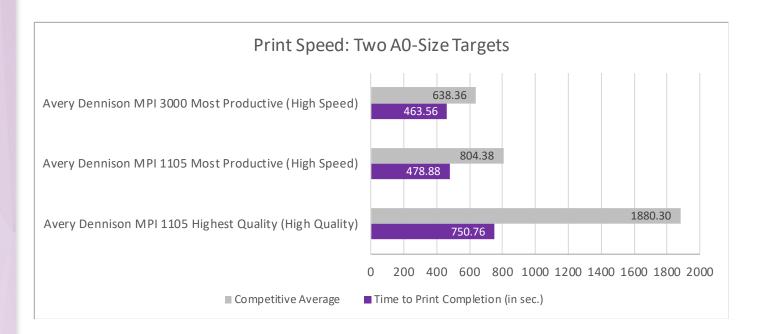
The ink indicator on the control panel displays one or two bars for the remaining ink level and lists numbers for each color instead of the actual color.



SPEED



Devices were timed for two of BLI's A0-size image quality targets printed in succession with data width turned on so that printing began at the far left of the page. The stopwatch began when the printhead started the print process and ended when the second print completed printing and was ready to cut. The speeds listed below were measured at the most productive setting that produced image quality that BLI determined as acceptable (no visible banding) on Avery Dennison MPI 3000 media when viewed at 10 feet and on Avery Dennison MPI 1105 media when viewed at two feet. The third speed measured was for the highest quality setting available to print two targets on Avery Dennison MPI 1105.



All Speed/Quality Settings Tested

Speed/Quality Setting	Avery Dennison MPI 3000	Avery Dennison MPI 1105
High Speed 4 Pass	463.56	478.88
Standard 6 Pass	563.28	563.12
High Quality 8 Pass	748.03	750.76

Time measured (in seconds) for two A0-size targets to be printed

At the most productive high speed 4 pass setting, the dual CMYK Roland TruVIS VG-640 produced two A0-size targets in 7 minutes and 43.56 seconds on the Avery Dennison MPI 3000 media. At the same high speed setting, the VG-640 generated two targets in 7 minutes and 58.88 seconds on MPI 1105 media.

At the highest quality 8 pass setting, the VG-640 produced two targets in 12 minutes and 30.76 seconds on MPI 1105 media.



SUPPORTING TEST DATA

The unit was evaluated at the manufacturer's U.S. facility during an intensive three-day test period. 54-inch rolls of Avery Dennison MPI 1105 – polymeric cast vinyl, MPI 2105 – calendared vinyl film and MPI 3000 – monomeric calendared vinyl media were tested in each device. All test files were submitted using the VersaWorks Dual RIP provided by the manufacturer. A Roland-recommended PCV4 (Premium Cast Vinyl) media profile was used for printing on MPI 1105 and MPI 2105 and a GCVP (Glossy Calendered Vinyl) media profile was used for printing on MPI 3000. The "Sign & Display" color management RIP setting was utilized for all image quality output. Ratings are based on a five-star system where five is the best.

Note: Two BLI analysts independently evaluated the individual sections of BLI's subjective image quality test, each judged on its own merits, with printer identification hidden. Under standard lab lighting conditions, each analyst ranked the print samples into five quality classifications (Excellent, Very Good, Good, Fair, Poor) and once completed, the individual appraisals were combined and a final image quality score was assigned. In the event of differing scores, the sample's quality was debated and a final consensus attained. Print samples on the MPI 3000 (monomeric vinyl) were evaluated at a distance of 10 feet (reflecting a walk- / drive-by viewing experience) and those printed on the MPI 1105 (cast vinyl) were evaluated at a closer distance of 2 feet (reflecting a close-up viewing experience). Although the Roland TrueVIS VG-640 has an integrated cutter, BLI evaluated the printer only.

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