



AMICA SYSTEMS

Technical Data Sheet

NuviINK[®] GUS-LV Ink Series

A Range of UV Curable Inkjet Inks Developed Specifically
for Multi-pass Printing with Ricoh MH5420/ MH5220 Printheads



NuviINK GUS-LV Ink Series

is formulated to provide excellent adhesion to a large range of flexible and rigid materials giving high output quality at high printing speeds.

- Designed to be used for multi-pass printing with Ricoh MH5420/ MH5220 printheads
- Designed for UV-LED curable applications
- Formulated to comply with standard inkjet requirements
- Fast UV cure for high production output
- Wide range of substrates with good adhesion

Order Codes

Type	Code	Spec
Cyan	IKUU000067	U-1L-C-MH5420/ MH5220
Magenta	IKUU000068	U-1L-M-MH5420/ MH5220
Yellow	IKUU000069	U-1L-Y-MH5420/ MH5220
Black	IKUU000070	U-1L-K-MH5420/ MH5220
White	IKUU000071	U-1L-W-MH5420/ MH5220
Light Cyan	IKUU000123	U-1L-Lc-MH5420/ MH5220
Light Magenta	IKUU000124	U-1L-Lm-MH5420/ MH5220
Light Black	IKUU000134	U-1L-Lk-MH5420/ MH5220
Orange	IKUU000129	U-1L-O-MH5420/ MH5220
Green	IKUU000131	U-1L-G-MH5420/ MH5220
Violet	IKUU000133	U-1L-VL-MH5420/ MH5220
Red	IKUU000125	U-1L-R-MH5420/ MH5220

Substrate Adhesion

Good Adhesion	ABS, PS, PVC, PETG, Acrylic, PC, Treated PET/ PP/ PE, Coated Metal
Good Adhesion with Primer	Untreated PET/ PP, Glass, Metal

Printing Conditions

Recommended printing parameters:

Printer:	AMICA Multi-pass Printer
Printhead:	Ricoh MH5420/ MH5220
Optimal Temperature:	40-45°C
Optimal Voltage:	14-18V (MH5420)
Drop Size:	Grey Scale

* The print conditions depend upon the choice of substrate, print mode, print resolution, print speed, printhead, printhead to substrate distance, etc.

* Continuous circulation is recommended for NuviINK GUS-LV white ink to prevent settlement and loss of opacity.

Curing

NuviINK GUS-LV ink series is UV-curable. Optimal cure can be achieved with UV-LED lamps at a wavelength in the range of 365-400nm.

Recommendations:

Wavelength:	395nm
Dosage:	≥ 400mJ/ cm ²
Printhead to substrate distance:	~1.0mm
Lamp to substrate distance:	~2.0mm

* Recommendations are based on 10µm coating printed with:

Printhead:	Ricoh MH5420/ MH5220
Printer:	AMICA multi-pass printer

The curing speed of the ink is generally dependent upon the age and power of the UV lamps, printed ink thickness, color-shade, substrate in use, printing speed, and the distance between the lamp and the substrate.

Number of passes for multi-pass printing is dependent upon the resolution and curing dosage for each pass.

Physical Properties

GUS-LV Color	Static Surface Tension @25°C(dynes/ cm)	Viscosity @45°C(cps)
Cyan	26-28	7-9
Magenta	26-28	7-9
Yellow	26-28	7-9
Black	26-28	7-9
White	26-28	7-9
Light Cyan	26-28	6-8
Light Magenta	26-28	6-8
Light Black	26-28	6-8
Orange	26-28	7-9
Green	26-28	7-9
Violet	26-28	7-9
Red	26-28	7-9

Color Values

The color value for each ink of the set gives an indication of the potential color space. The average CIE Lab color values are given in the table below for coatings on photo-grade micro porous inkjet paper(L* = 94.8, a* = 0.1; b* = -1.6).

The Opacity describes how opaque the ink is. An opacity value of 100% means the ink is fully opaque while the opacity value of 0% means an ink is fully transparent. The Opacity of ink is given in the table below for coatings on transparent PET substrate against a black background.

Actual color gamut will depend on the print mode, waveform, temperature, substrate, etc.

Parameters:

Illuminant: D50 Observer: 2° angle Thickness: 10µm

GUS-LV Color	L*	a*	b*
Cyan	52.7	-41.3	-50.2
Magenta	56.4	67.8	-10.7
Yellow	88.4	-7.9	85.2
Black	17.0	1.9	6.6
Light Cyan	66.8	37.5	-36.3
Light Magenta	65.1	56.7	-20.2
Light Black	38.8	2.2	4.7
Orange	72.0	44.8	76.6
Green	68.9	-55.0	-3.0
Violet	30.2	44.2	-60.9
Red	57.7	64.0	27.0

GUS-LV Color	Opacity (%)
White	64.3

Auxiliaries

NuviINK F-UAC Flushing fluid

NuviINK F-UAC Flush is recommended to be used for cleaning printheads and other ink-carrying components. This cleaner has been chemically adjusted to be used with Ricoh MH5420/ MH5220 printheads.

Flush	IKUU000105	U-1L-F-Unlimited PH
	IKUU000106	U-5L-F-Unlimited PH

NuviINK GUV Varnish

NuviINK GUV is UV varnish used to add a high gloss or semi-gloss effect to various UV-printing substrates. It can be applied as a protective coating or to highlight specific areas of the print for dramatic effect.

Varnish	IKUU000072	U-1L-Varnish-MH2420/ MH5420
	IKUU000073	U-4L-Varnish-MH2420/ MH5420

NuviINK GUM Primer

NuviINK GUM is the UV primer for rigid substrates. It helps to achieve good adhesion when GUS-LV ink series has difficulties adhering to challenging substrates.

Primer	IKUR000013	U-1L-P-MH2420/ MH5420
	IKUR000014	U-4L-P-MH2420/ MH5420

Shelf Life

Twelve months from production date when stored under recommended conditions. Actual expiry date is listed on the product label.

Storage

Recommended storage conditions:

Temperature: 10-25°C

Relative Humidity: 50-65%

Store in a dark, dry and well-ventilated room.

Avoid direct sunlight, UV light and heat.

* Storage outside of the recommended temperatures may lead to stability issues and deterioration in the performance of the ink product.

Maintenance

Printhead should be protected with capping unit when idle to avoid radiation exposure, dust, and to keep printhead moist.

Printhead and other ink-carrying components can be purged and cleaned with NuviINK F-UAC flushing fluid. Flushing and cleaning are recommended when printhead is left idle.

* When print heads are idle, make sure the heating for print head and sub-ink-tank is turned off. Ink being exposed to high temperature will have shorter shelf life and damage the print head.

In order to ensure high printing quality using NuviINK GUS-LV ink, please also follow the guidelines in AMICA printers' **User Manual** and/ or **Service Manual**, especially regarding to the ink supply system and printhead maintenance.

Maintenance for Color Ink

Idle Period	Maintenance	Fluid in Printhead	Fluid in Ink Channel
During Production	Purge and wipe every 2 hours	Ink	Ink
30 min to 7 days	Cap printheads	Ink	Ink
7 to 10 days		Flush	Flush
Above 10 days	Uninstall printheads from printer and install to original package	Flush	Flush

Maintenance for White Ink

Idle Period	Maintenance	Fluid in Printhead	Fluid in Ink Channel
During Production	Purge and wipe every 2 hours	Ink	Ink
15 to 30 min	Enable ink circulation	Ink	Ink
30 min to 1 day	Cap the printhead; enable ink circulation	Ink	Ink
1 to 7 days	Flush ink out and cap the printhead	Flush	Ink
7 to 10 days	Cap the printhead	Flush	Flush
Above 10 days	Uninstall printheads from printer and install to original package	Flush	Flush

Change-over

* Compatibility between inks must be confirmed by the customers before a change-over.

* Frequent change-over between types/ colors of ink is not recommended.

For the ink change-over, it is recommended to use NuviINK F-UAC Flush for printheads and all other ink-carrying components.

When converting a system to NuviINK GUS-LV ink series, use the appropriate flush designed for the remaining ink in the system, followed by flushing with NuviINK F-UAC to minimize contamination.

When converting a system from NuviINK GUS-LV ink series to another ink, use NuviINK F-UAC flush to flush the printheads and system until the lines are clear.

Safety & Handling

Avoid exposure to skin/ eyes with NuviINK GUS-LV ink and wear protective gloves/ protective clothing/ eye protection.

Comprehensive information on the safety and handling of GUS-LV ink series is given in the *Safety Data Sheets*.

Remarks

Technical advices are provided based on current knowledge, information and belief through continuous test trials at the date of this publication. The information given is designed only as a guide and is not to be considered as a warranty or quality specification.

AMICA SYSTEMS only sells NuviINK series products as consumables for AMICA SYSTEMS printers and/ or printing engines. AMICA SYSTEMS does not warrant inks being used for any other purposes.



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