



DNSC

diversified nano
solutions corp

Redefining Digital Ink

**Customized digital ink solutions—nano-fluid & delivery technology
for digital ink platforms of any size and performance capability!**

Functional Inks | Dispersions | Magnetic | Color | Invisible | Custom

Diversified NANO Solutions Corporation (DNSC), based in San Diego California, specializes in developing and manufacturing nano materials and fluids used in high-performance functional inks for digital printing, unique customer applications, research and surface treatments. DNSC has developed an extensive product line of inks known as x-nano™, providing a range of solutions that utilize magnetic and non-magnetic nano particles, including invisible fluorescent inks (UV/IR), special pigmented/hybrid inks and MICR (Magnetic Ink Character Recognition) inks. These inks address dot on demand inkjet applications based on thermal and piezo print heads using aqueous, oil, energy curable (UV/LED) and eco-solvent based inks.



Diversified Nano Solutions Corporation (DNSC) | **x-nano™**

■ K-Series 2-3	■ I-Series 4-5	■ Value-Series6-7	■ Elite-Series8-9	■ S-Series10-11
Elite Black KM	UV Blue 460	Premium Black	Elite Black	Elite Black Fast-Dry
Elite Black MICR MAX	UV Green 545	Premium Cyan	Elite Cyan	
Elite Black MICR HD2A	UV Green-Yellow 550	Premium Magenta	Elite Magenta	
Elite Black MICR HD3X-1G	UV Yellow-Green 560	Premium Yellow	Elite Yellow	
Elite Black MICR HD2B-156	UV Red 615	Premium Red (Spot)	Elite Red (Spot)	
	IR-783	Premium Blue (Spot)	Elite Blue (Spot)	
	IR-820			
	IR-1040			
Inkverse™ 14-17		Samples24-27		
Applications 18		About 28		
Compatibility 19		Contact 28		
Accessories 20-21		Index 29		
				■ M-Series 12-13
				MF-I Iron Oxide
				MF-M Multi-Metal



■ K-Series ■ I-Series ■ Value-Series ■ Elite-Series ■ S-Series ■ M-Series

k-series

General purpose & security
MICR ink—ideal for professional,
high-speed, high-density, industrial
inkjet printing.

Aqueous Inkjet Ink - Dot on Demand¹

Part No. ²	Product Name	Ink Type	Viscosity (cPs)	Surface Tension (dyn/cm)	Density (g/mL)	Particle Size (nm)	Magnet Signal (@600x600-16pL)
● KKM-X	x-nano™ Elite Black KM	Pigment w/ MICR Primer	6.7-9.8	32-42	1.28-1.38	50±20	23-35%
● KMAX-X	x-nano™ Elite Black MICR MAX	MICR w/ Pigment Primer	7.0-9.5	30-41	1.39-1.45	50±20	75-85%
● KHD2A-X	x-nano™ Elite Black MICR HD2A	MICR	8.0-10.0	30-41	1.39-1.45	50±20	100-110%
● HD3X-1G-X	x-nano™ Elite Black MICR HD3X-1G	MICR	8.5-10.0	30-42	1.42-1.45	50±20	110-130%
● HD2B-156-X	x-nano™ Elite Black MICR HD2B-156	MICR	12.0-17.1	32-42	1.50-1.58	50±20	120-150%

Stability

High (no agitation required)

Shelf Life

>24 months

Media Compatibility

Porous, non-porous paper & corrugated

Print Head Compatibility

Piezo & Thermal for Industrial, Commercial, Office and Consumer printing platforms*

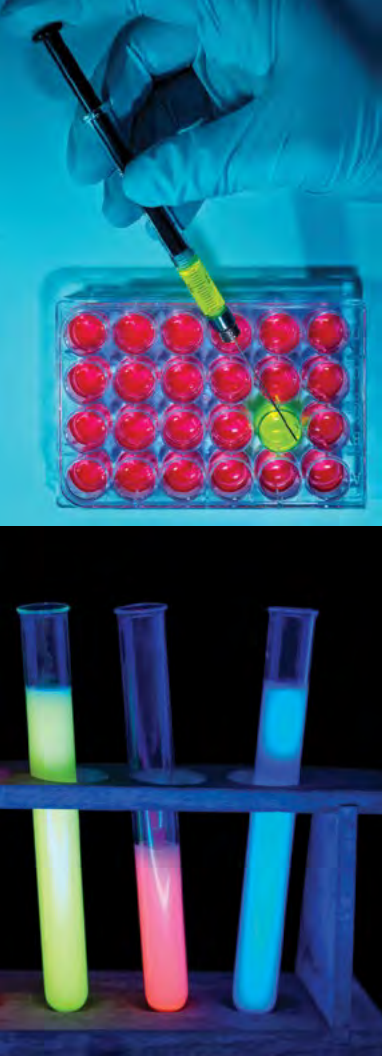
¹ Optional: Solvent, Oil and UV curable vehicle - contact DNSC for more information.

² Part numbers include a variable component “X” which changes based on print heads and target print systems.

* Details on Page 19



i-series



Invisible, fluorescent, dye and pigment ink—ideal for general purpose, high-quality, security desktop printing.

Aqueous Inkjet Ink - Dot on Demand¹

Part No. ²	Product Name	Ink Type	Viscosity (cPs)	Surface Tension (dyn/cm)	Density (g/mL)	Particle Size (nm)	Detection (Type, nm)
● IUV-B460S-X	x-nano™ UV Blue 460	Dye	3.0-8.0	32-42	1.1-1.2	NA	UV, 365
● IUV-G545S-X	x-nano™ UV Green 545	Pigment	3.0-8.0	35-45	1.1-1.2	170±50	UV, 365
● IUV-GY550S-X	x-nano™ UV Green-Yellow 550	Pigment	3.0-8.0	35-45	1.1-1.2	170±50	UV, 365
● IUV-YG560S-X	x-nano™ UV Yellow-Green 560	Pigment	3.0-8.0	35-45	1.1-1.2	190±50	UV, 365
● IUV-R615S-X	x-nano™ UV Red 615	Pigment	3.0-8.0	35-45	1.1-1.2	190±50	UV, 365
● IIR-783S-X	x-nano™ IR-783	Dye	3.0-8.0	32-42	1.0-1.1	NA	IR, 783
● IIR-820S-X	x-nano™ IR-820	Dye	3.0-8.0	32-42	1.0-1.1	NA	IR, 820
● IIR-1040S-X	x-nano™ IR-1040	Dye	3.0-8.0	30-40	1.0-1.1	NA	IR, 1040

Stability High (no agitation required)
 Shelf Life >24 months
 Media Compatibility Porous, non-porous paper & corrugated
 Print Head Compatibility Piezo & Thermal for Industrial, Commercial, Office and Consumer printing platforms*

¹ Optional: Solvent, Oil and UV curable vehicle - contact DNSC for more information.
² Part numbers include a variable component "X" which changes based on print heads and target print systems.
 * Details on Page 19



value-series

General purpose dye and dye/pigment hybrid ink—ideal for economical, high-quality, desktop inkjet printing.

Aqueous Inkjet Ink - Dot on Demand¹

Part No. ²	Product Name
● VK-X	x-nano™ Premium Black
● VC-X	x-nano™ Premium Cyan
● VM-X	x-nano™ Premium Magenta
● VY-X	x-nano™ Premium Yellow
● VR-X	x-nano™ Premium Red (Spot)
● VB-X	x-nano™ Premium Blue (Spot)

Ink Type	Dye & Dye Pigment Hybrid
Viscosity	2.0 - 6.5 cPs*
Surface Tension	32 - 42 dyn/cm*
pH	7.0 - 8.5*
Density	1.0 - 1.2 g/mL*
Particle Size	100 - 200 nm (when applicable)
Waterfastness	Very good
Detection	Visible light range
Stability	High (no agitation required)
Shelf Life	>24 months
Media Compatibility	Porous, non-porous paper & corrugated
Print Head Compatibility	Piezo & Thermal for Industrial, Commercial, Office and Consumer printing platforms*

¹ Optional: Solvent, Oil and UV curable vehicle - contact DNSC for more information.

² Part numbers include a variable component "X" which changes based on print heads and target print systems.

* Details on Page 19

elite-series



General purpose pigment ink—
ideal for professional, high-speed,
high-density, industrial inkjet printing.

Aqueous Inkjet Ink - Dot on Demand¹

Part No. ²	Product Name
● EK-X	x-nano™ Elite Black
● EC-X	x-nano™ Elite Cyan
● EM-X	x-nano™ Elite Magenta
● EY-X	x-nano™ Elite Yellow
● ER-X	x-nano™ Elite Red (Spot)
● EB-X	x-nano™ Elite Blue (Spot)

Ink Type	Pigment
Viscosity	2.0 - 6.5 cPs*
Surface Tension	32 - 42 dyn/cm*
pH	7.0 - 8.5*
Density	1.0 - 1.2 g/mL*
Particle Size	100 - 200 nm
Waterfastness	Excellent
Detection	Visible light range
Stability	High (no agitation required)
Shelf Life	>24 months
Media Compatibility	Porous, non-porous, coated, glossy and offset
Print Head Compatibility	Piezo & Thermal for Industrial, Commercial, Office and Consumer printing platforms*

¹ Optional: Solvent, Oil and UV curable vehicle - contact DNSC for more information.

² Part numbers include a variable component "X" which changes based on print heads and target print systems.

* Details on Page 19



S-series

Specialty Fast-Dry pigment ink—
ideal for professional, high-speed,
industrial inkjet printing.

Aqueous Inkjet Ink - Dot on Demand¹

Part No.²

● SFD-X

Product Name

x-nano™ Elite Black Fast-Dry

Ink Type	Pigment
Viscosity	3.0 - 7.0 cPs*
Surface Tension	27 - 35 dyn/cm*
pH	7.0 - 9.0*
Density	1.1 - 1.2 g/mL*
Particle Size	130±20 nm
Waterfastness	Excellent
Detection	Visible light range
Stability	High (no agitation required)
Shelf Life	>24 months
Media Compatibility	Porous, non-porous paper & corrugated
Print Head Compatibility	Piezo & Thermal for Industrial, Commercial, Office and Consumer printing platforms*

¹ Optional: Solvent, Oil and UV curable vehicle - contact DNSC for more information.

² Part numbers include a variable component “X” which changes based on print heads and target print systems.

* Details on Page 19

m-series Magnetic Fluid.



Magnetic Fluid - Convertible Aqueous Dispersion¹

Part No. ²	Product Name	Type	Viscosity (cPs)	Surface Tension (dyn/cm)	Density (g/mL)	Particle Size (nm)
● MFI-X	x-nano™ Magnetic Fluid Iron Oxide	Nano Particle Dispersion	7.0-18.0	55-65	1.4-1.7	50±20
● MFM-X	x-nano™ Magnetic Fluid Multi-Metal	Nano Particle Dispersion	7.0-18.0	55-65	1.4-2.0	50±20

Stability	High (no agitation required)
Shelf Life	>24 months
Media Compatibility	Porous, non-porous paper & corrugated
Print Head Compatibility	Piezo & Thermal for Industrial, Commercial, Office and Consumer printing platforms*

¹ Optional: can be customized and converted for various applications.
² Part numbers include a variable component “X” which changes based on print heads and target print systems.
 * Details on Page 19

Unlimited choice of standard INKVERSE™ to make container ready



— Gateway to the Universe of Inks

Open Connect to Shared INKVERSE™ Modules



Connect INKVERSE™ modules with easy snap-on attachments using magnetic adhesives direct-to-printer frame, wall, or stainless steel mounting board. Replace individual modules, or expand INKVERSE™ system during print operation.

For inkjet system integrators and manufacturers. Visit diversifiednano.com or contact us at info@diversifiednano.com for pricing and more details.

TIJ Printing Systems



High Speed Production/Continuous Feed



Industrial Specialty



Business / Enterprise



INKVERSE™ Infinite Ink Infuser Blade System: 360, 760, 1000, 2000, 5000, 10000ml inter-connectable, endlessly expandable and shared for infusion of ink into existing delivery containers or directly to print head feed lines.



Economical

Shared, bulk volume discount, any ink type, standard low-cost container choice.

Flexible

Supports any size and performance printer and print head platform. Available with black, color, invisible and magnetic ink (water based).

Sustainable

Easy recycle for re-use and eliminates cartridge waste.

Unlimited

Inter-connectable and built with sharing and extension in mind to support unlimited printers and print heads simultaneously in shared environment.

Easy-to-Install and Use

One-push/pull quick release and connect—air free! Snap-on system installs using Mag-Pak and stainless steel mounting board.

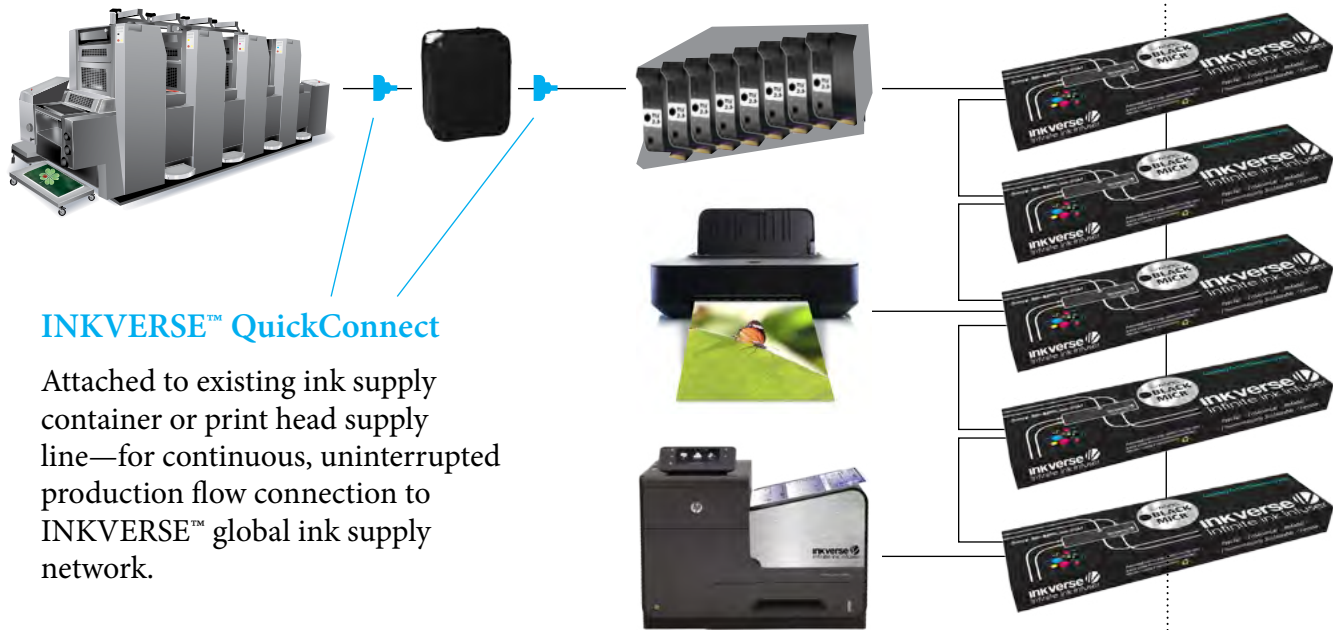
Robust

Stainless steel master containers with magnetic attachment to frame and stainless steel mounting board. Easy to adjust length and neat integrated storage of excess tubing.

For inkjet system integrators and manufacturers. Visit diversifiednano.com or contact us at info@diversifiednano.com for pricing and more details.

Example QuickConnect Configurations

N Blades in M Printers / Print Heads with Global Supply Source



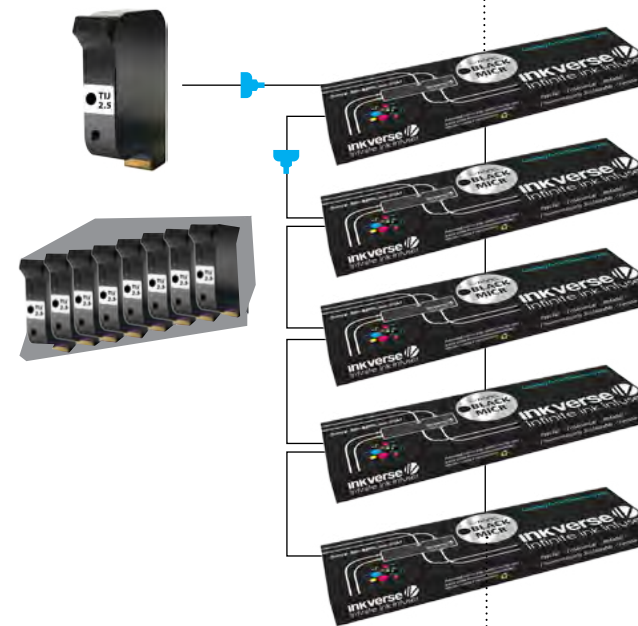
INKVERSE™ QuickConnect

Attached to existing ink supply container or print head supply line—for continuous, uninterrupted production flow connection to INKVERSE™ global ink supply network.

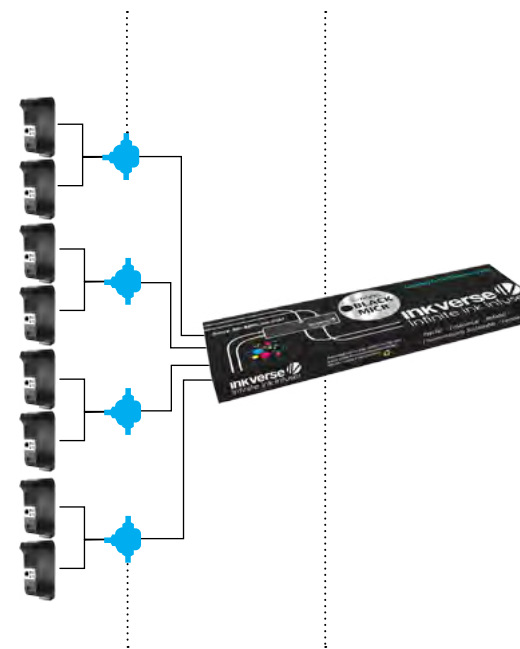
For inkjet system integrators and manufacturers. Visit diversifiednano.com or contact us at info@diversifiednano.com for pricing and more details.

Example QuickConnect Configuration – TIJ 2.5

N Blades in 1 Print Head



Up to 8 Connections Per Blade



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Printing Applications

Industry	Printer	Function	Examples	Ink Series
Desktop	Dot on Demand Inkjet Printer	<ul style="list-style-type: none"> • General purpose • Business • Commercial 	<ul style="list-style-type: none"> • Books • Transactional • Images • PDFs 	• Value-Series
		<ul style="list-style-type: none"> • MICR compliant 	<ul style="list-style-type: none"> • Check printing 	• K-Series
		<ul style="list-style-type: none"> • UV printing 	<ul style="list-style-type: none"> • IDs • Checks • Images • Documents 	• I-Series
Commercial	Dot on Demand Digital Inkjet Press (Mono & Color)	<ul style="list-style-type: none"> • High speed • High resolution • High quality • General purpose 	<ul style="list-style-type: none"> • Marketing materials (brochures, catalogs, DM, etc.) • Photos • TransPromo • Transactional 	<ul style="list-style-type: none"> • K-Series • I-Series • Value-Series • Elite-Series
Industrial	Dot on Demand Industrial Inkjet Systems	<ul style="list-style-type: none"> • High speed tracking • Non-overt detection & sorting • Multi-layer 	<ul style="list-style-type: none"> • Packaging • Documents • Envelopes & mailing 	• K-Series
		<ul style="list-style-type: none"> • UV security 	<ul style="list-style-type: none"> • IDs & passports • Checks • Images & documents • Lottery & currency 	• I-Series
		<ul style="list-style-type: none"> • High speed • Large format/quantity 	<ul style="list-style-type: none"> • 400 pages @ maximum resolution 	• S-Series
		<ul style="list-style-type: none"> • Research & development of magnetic fluids 	<ul style="list-style-type: none"> • Chemistry, biochemistry, material science, molecular biology 	• M-Series
		<ul style="list-style-type: none"> • Direct to Garment (DTG) • Large format rolls 	<ul style="list-style-type: none"> • Wallpaper • Fabric • Pillows • Furniture 	• T-Series (not listed)
Foodservice	Dot on Demand Industrial Inkjet Systems / Single Head Mount	<ul style="list-style-type: none"> • Edible food decoration • Track 'n Trace 	<ul style="list-style-type: none"> • Cakes • Eggs • Desserts • Produce 	• F-Series (not listed)

All x-nano™ inks and ink parameters are specifically adjusted to meet the requirements of print-head types and manufacturers listed.

Print Head Manufacturers

Piezo
 Brother
 Epson
 Fujifilm Dimatix
 Konica Minolta
 Kyocera
 Panasonic
 Ricoh
 Xerox

Machine Type

Thermal
 Brother
 Canon
 Epson
 Graph-Tech
 Hewlett Packard
 Hewlett Packard
 Hewlett Packard
 Impika
 Infoprint/Ricoh
 Kodak
 Lexmark
 Oce/Canon
 Pitney Bowes
 RR Donnelley

All desktop inkjet models
 All thermal desktop/workgroup inkjet models
 All piezo inkjet models
 MonoCube
 Web Press T-series
 OfficeJet/Deskjet
 TIJ 2.5 and 4.0
 iPrint/iEngine
 Infoprint 5000 series
 VersaMark VL series
 All thermal desktop and industrial inkjet models
 Jetstream/ColorStream series
 IntelliJet series
 Custom inkjet presses

*FlexAdapt™ is a proprietary DNSC process which allows efficient adaption of physical and chemical properties of individual inks to meet the specific requirements of print system implementations and print head operating parameters.

UV / MICR Scanners



UV Light Source & IR Laser Pointer



Specialty Inkjet Paper



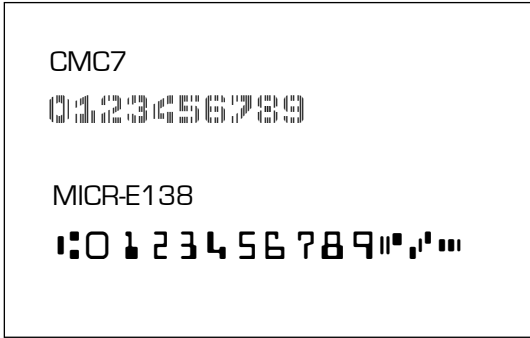
Complete Desktop Inkjet Test System: DNSC 1000

- HP-1000MX MICR printer
- VersaCheck® check writing software
- MICR & Tri-Color ink



For supplies visit diversifiednano.com or contact us at info@diversifiednano.com.

MICR Fonts



HP TIJ 2.5/4.0 Compatible Solution

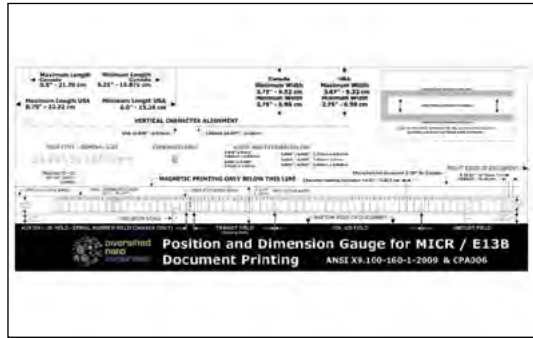
TIJ 2.5 Printing Solutions for:

- Industrial • Security • Financial

MICR	Black	Spot	Invisible	Fast-Dry

Optional: Private Branding

MICR Line Gauge



Professional Loupe



JetFix 2A



For supplies visit diversifiednano.com or contact us at info@diversifiednano.com.

Invisible Ink for Thermal and Piezo Dot on Demand Print Heads

UV Blue 460



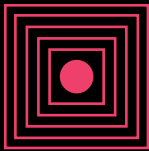
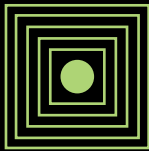
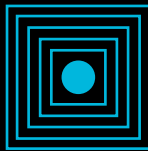
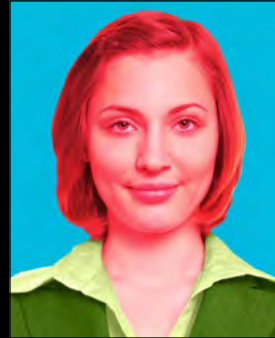
UV Green 545



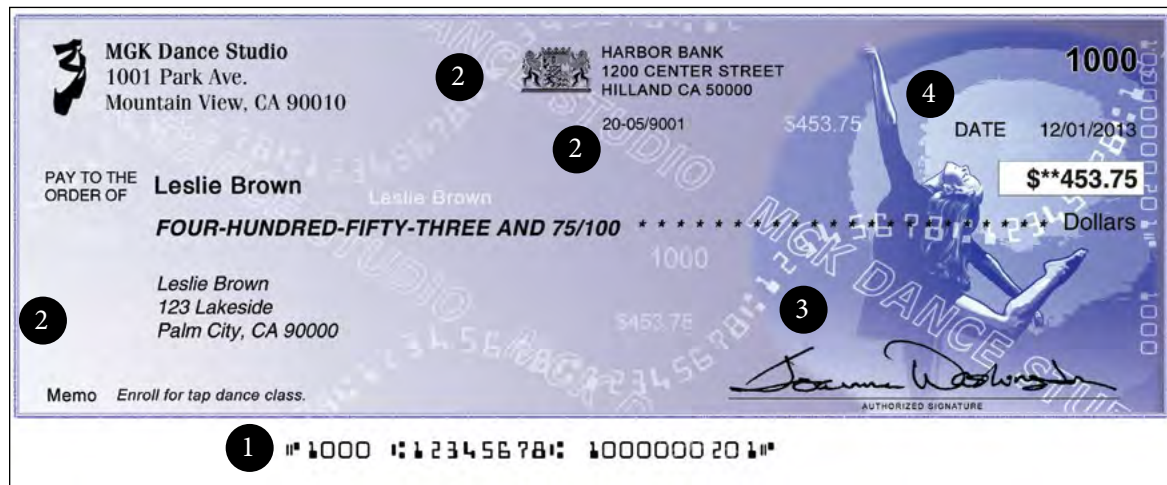
UV Yellow-Green 560



UV Red 615



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|---|--|---|
| 1 | MICR Bank Code line | K-Series (MICR) |
| 2 | 2-D barcode - invisible uv fluorescent | Value-Series, Elite-Series, I-Series (UV, IR) |
| 3 | Data Noise Authentication™ (DNA) security marks/text | Value-Series, Elite-Series, I-Series (UV, IR) |
| 4 | Variable data, field tags, color background and graphics | Value-Series, Elite-Series |

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About MICR Ink

DNSC K-Series MICR inks are in wide use today by industrial and commercial users of high-speed inkjet presses; and home and office users of desktop inkjet printers. Almost every currently available inkjet printer, All-in-One and fax machines can be equipped with MICR ink cartridges to print bank compliant, long lasting documents for archival, security applications, payments and premium quality prints.

About CMYK-Channel Color and Black Ink

DNSC Value-Series, Elite-Series and S-Series inks are based on a new family of dye and nano particles, formulated with special ingredients, to achieve an unprecedented coverage and ultra-smooth appearance on various substrates. Both Premium and Elite inks are available for desktop, industrial and commercial print applications utilizing thermal and piezo print heads available from a variety of manufacturers.

**About Invisible IR/UV Fluorescent Ink**

DNSC invisible inks support many security related applications. These inks can be printed on media without interfering with other content printed on the same documents using regular visible ink. This helps reduce the need for additional print material, labels, tags, run-time, etc. and enables authentication of objects and items using UV (ultraviolet) or IR (infrared) light. Invisible fluorescent and infrared inks provide a platform for endless industrial and security applications in the workplace, and can even inspire creativity at home or for entertainment purposes—tickets, events, dining and more. DNSC invisible IR/UV fluorescent inks are suitable for all major inkjet printers and presses utilizing dot-on-demand inkjet technology.

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About	28	K-Series	2-3
Accessories	20-21	M-Series	12-13
Applications	18	MICR Font	21
Compatibility	19	MICR Check Scanner	20
Contact	28	MICR Line Gauge	21
Elite-Series	8-9	MF-I Magnetic Fluid Iron Oxide	20
Elite Black Ink	9	MF-M Magnetic Fluid Multi-Metal	20
Elite Cyan Ink	9	Premium Black Ink	7
Elite Magenta Ink	9	Premium Cyan Ink	7
Elite Yellow Ink	9	Premium Magenta Ink	7
Elite Red Ink (Spot)	9	Premium Yellow Ink	7
Elite Blue Ink (Spot)	9	Premium Red Ink (Spot)	7
Elite Black MICR HD3X-1G Ink	3	Premium Blue Ink (Spot)	7
Elite Black Fast-Dry Ink	11	Professional Loupe	21
Elite Black MICR HD2B-156 Ink	3	S-Series	10-11
Elite Black KM Ink	3	Samples	24-27
Elite Black MICR MAX Ink	3	Specialty Inkjet Paper	20
Elite Black MICR HD2A Ink	3	UV Barcode Scanner	20
I-Series	4-5	UV Blue 460 Ink	5
Inkverse™	14-17	UV Green 545 Ink	5
IR Laser Pointer	20	UV Green-Yellow 550 Ink	5
IR-783 Ink	5	UV Yellow-Green 560 Ink	5
IR-820 Ink	5	UV Red 615 Ink	5
IR-1040 Ink	5	UV Light Source	20
JetFix 2A	21	Value-Series	6-7



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