

Digital Printing Guide



Digital Printing 101

In the world of digital ink jet printing, there are many variables to achieving quality output. These different variables can extremely affect the way printers function and inks lay onto media. Below are basic recommendations for achieving optimal print quality on Mactac® JT5000 digital print media.

Environment

Print room must be a clean, well ventilated, temperature and humidity controlled room. It should be in an enclosed area away from high traffic, warehouse, etc. This will keep the printer and print heads clear of debris; and also dust and dirt off of the media before and after printing. Gloves are recommended for handling the media as to keep fingerprints and oil from your hands off of the printed surface.

Recommended relative humidity: 40-60%

Recommended temperature: 70-75° F

All rolls of media should be stored in the room for 48 hours to acclimate to the environment.

Static

Having a controlled room also helps control static. Static can really affect ink lay down and attract dust and dirt towards the media and printing area. Do not place carpet or rugs in the printing area that would attract static. Static also thrives in low humidity environments. Static string is a relatively inexpensive way to help control static. You can find it at www.stopstatic.com. Apply the string to a metal piece of the printer (good to loosen a screw and tighten back). Then run across the web width of the media one inch away. Again, apply other end of string to a metal piece of the printer and ground to the floor. Grounding to something away from the printer is important (Even though your printer is ground, but only for the electrical part).

Media Profiles

Using the proper profiles is the key to optimal printing. This includes proper heat settings, ink restrictions, linearization, total ink limits and iCC profile. Without these correct profiles, the media will not print properly! Profiles will control output, increase production time and reduce ink usage. Visit www.mactac.com/graphics to download the correct profile for your printer. There are over 500 profiles online for all the major printers and RIP software. A read me file is also attached with instructions on how to download and import into your RIP software.

Printer Maintenance

Follow all printer manufacturers' guidelines for printer maintenance. Proper maintenance will ensure correct calibration and increase the life of the printer, print heads and mechanical parts.

Dry Time

You must let printed graphics dry properly. Dry to the touch does not mean that the printed graphics are completely dry or "cured". The graphics must be accessible to the air to drive the solvents off of the media. Printing directly onto a take up roll and putting in the corner is not drying. There must be air flow to push the solvents off the media! We recommend 24-48 hours dry time before any type of finishing (overlaminates, clearcoat). Without the recommended dry time, solvents are trapped and migrate into the film causing it to soften and stretch improperly. These solvents will also migrate into and deaden the adhesive. We cannot stress enough the importance of drying the graphics properly.

Follow these recommendations to control these variables in your printing process and you will be on your way to better controlled output, happier customers and an increased bottom line.

Eco-Solvent

Eco-Solvent — Wide Format

Low-cost, entry level machines ideal for Sign Shops who want to specialize in outdoor or durable signage. They are targeted for shops new to digital printing and manufacturers are thus increasingly making these machines “plug ‘n play” for ease of operation. Shops are mainly printing banner and self-adhesive vinyl for general purpose signage and vehicle wraps.

Printer Widths: 30” – 102”

Printer Wpeeds: 50 – 350 ft² / hour

- Roland: VersaCamm VS and SP series, Sol Jet Pro III series, VersaArt
- Mutoh: ValueJet Series
- Epson: GS6000, S 30670

Mactac Recommended Applications: Outdoor/Indoor Signage, P.O.P, Vehicle/Fleet Wraps, Decals and Floor Graphics

Mactac Recommended Media: JT5529BFD PRO, GV729BFD, GV529BFD, GV429RBFD, DA012, JT5796MBF, JT5798MBF, JT5999MBF, RR100, JT5828P/R/HTO, JT828P, JT829P, JT5916, WP129, JDT429, WN628, RO628, STR328, PVO228/229, VM1229P, RB528P/R, RB529P/R/H, RB599R/H, RB428P and RB429P



Mild Solvent — Wide and Grand Format

A step up from the traditional eco-solvent printers, these mild solvent machines having higher output speeds, can print on a wider variety of uncoated substrates and reach into grand-format size (96” and above). These machines are for the sign-shop owner looking for more speed or the medium-sized print provider with high output. Shops are mainly printing banner and self-adhesive vinyl for general signage and vehicle wraps.

Printer Widths: 54” – 104”

Printer Speeds: 50 – 600 ft² / hour

- HP Design Jet: 8000, 9000
- Mutoh ValueJet: 1624, 2606
- Mimaki: JV33 Series, JV 34-260, CVJ 30 Series
- Roland: Advance Jet AJ 1000i, AJ740i
- Seiko I Infotec: ColorPainter H2 Series , W Series

Mactac Recommended Applications: Outdoor/Indoor Signage, P.O.P, Vehicle/Fleet Wraps, Decals and Floor Graphics

Mactac Recommended Media: JT5529BFD PRO, GV729BFD, GV529BFD, GV429RBFD, DA012, JT5796MBF, JT5798MBF, JT5999MBF, RR100, JT5828P/R/HTO, JT828P, JT829P, JT5916, WP129, JDT429, WN628, RO628, STR328, JT5728P, JT5999R, RB528P/R, RB529P/R/H, RB599R/H, RB428P and RB429P



Solvent - Wide and Grand Format Printers

Solvent — Grand Format

Production machines made for the high volume, large print shops. Solvent printing transformed the digital printing marketplace and still owns the largest share of the outdoor printing market. High speeds with low cost of operation make this technology a staple in many print shops. Solvent, eco-solvent and mild-solvent printing are the recommended print technologies for Vehicle and Fleet graphics.

Printer Widths:

54" to 104" for Wide Format

Up to 16 ft for Grand Format

Printer Speeds:

50 to 600 ft² / hour for Wide format

Up to 1650 ft²/hour for Grand Format

- Mimaki: JV-5 Series
- Agfa: Jeti 3300 Series, 5024
- HP Scitex TJ8300
- Efi/Vutek: 3360, 5330

Mactac Recommended Applications: Outdoor/ Indoor Signage, P.O.P and Vehicle/Fleet Wraps

Mactac Recommended Media: JT5529BFD PRO, GV729BFD, GV529BFD, GV429BFD, DA012, JT5796MBF, JT5798MBF, JT5999MBF, RR100, JT5828P/R/HTO, JT828P, JT829P, JT5916, WP129, JDT429, WN628, RO628, STR328, JT5728P, JT5999R, RB528P/R, RB529P/R/H, RB599R/H, RB428P, RB429P

For HP Turbojet 8300 a 6" core product is needed.
Products with a 6" core include: JT5529BFD PRO, JT5817, WN628, JDT429, JT5829 and REBEL™ Series



UV - Wide and Grand Format Printers & Latex - Wide and Grand Format Printers

UV — Wide and Grand Format

Originally known for printing directly onto rigid substrates, UV-curable inks have become more flexible and capable of printing roll to roll on flexible substrates including adhesive backed vinyl. Coupled with the fact that production speeds and quality are increasing and it is a greener printing solution compared to solvent, UV roll-to-roll printing will continue to gain market share.

Printer Widths:

54" to 104" for Wide Format

Up to 16 ft for Grand Format

Printer Speeds:

50 to 600 ft² / hour for Wide format

Up to 3100 ft²/hour for Grand Format

- Mimaki : UJV-160, JFX Plus series, JF Series
- Roland VersaUV; LEJ 640, LEC Series
- Agfa: Annapurna 2500LED, M Series, Jeti 3020 Titan
- Durst: Rho P10 series, Rho 1000
- Matan: Barak Line 8Q, iQ
- Fujifilm: Inca Onset, Acuity Series
- Efi / Vutek: HS100 Pro, GS Series, G22000, QS2 Pro
- Gerber: CAT UV, Solara Ion

Mactac Recommended Applications: Outdoor Signage, P.O.P and Fleet Wraps

Mactac Recommended Media: JT5529BFD PRO, GV729BFD, GV529BFD, GV429RBF, DA012, JT5796MBF, JT5798MBF, JT5999MBF, RR100, JT5828P/R/HTO, JT828P, JT829P, JT5916, WP129, JDT429, WN628, RO628, STR328, JT5728P, JT5999R, VM3209R, RB528P/R, RB529P/R/H, RB599R/H, RB428P and RB429P



Latex Inks — Wide and Grand Format

Latex inks are a new development from HP. It's the first water-based ink that can print on uncoated substrates and is still as durable as an eco-solvent ink. The Latex inks also emit significantly less VOC's, with no odor and are more friendly for printer operators. Mactac is a HP Certified HP Latex Developer for this new ink technology. We have worked closely with HP to test and approve many Mactac media printed on the HP Designjet L65500.

Printer Widths: 51" to 104"

Printer Speeds: 50 to 200 ft² / hour

- HP Designjet: L26500, L28500, LX600, LX800, L25500, L65500
- Mimaki: JV400LX Series

Mactac Recommended Applications: Outdoor/Indoor Signage, P.O.P, Vehicle/Fleet Wraps and Decals

Mactac Recommended Media: JT5529BFD PRO, GV729BFD, GV529BFD, GV429RBF, DA012, JT5796MBF, JT5798MBF, JT5999MBF, RR100, JT5828P/R/HTO, JDT429, WN628, RO628, STR328, JT5728P, JT5999R, RB528P/R, RB529P/R/H and RB599R/H



Thermal Transfer - Wide Format Printers

Thermal Transfer — Wide Format

Printing process that melts colored-ribbon onto the printable substrate. Widths range from 15" to 54." Devices also have contour cutting capabilities and used a lot for decals. Media must have a high gloss surface for the transfer ribbon to adhere.

Recommended Products: JT5929P, JT5829P/R, JT829, EMP329

Printer widths: 15" – 54"

Printer speeds: 15 – 93 sq. ft./hr

- Summa: DC4
- Gerber: Edge

Mactac Recommended Applications: Outdoor signage and labels

Mactac Recommended Media: JT5829, JT5929, 8300 and 9800



- **Always consult Mactac performance guide** for correct product applications

- Profiles are available online 24 hours a day, 7 days a week at www.mactac.com/graphics

Narrow Format Digital Printers

Indigo Liquid Toner — Narrow Format

HP Indigo presses use a unique liquid toner, sometimes referred to as HP ElectroInk. These presses print without plates enabling the printer the ability to create personalized short runs, changing text, images and jobs without having to stop the press. Typically used in commercial production and label converting environments. Newer models print up to 7 colors including white and Pantone approved spot colors and clear inks to create raised effects. Quality rivals off-set quality.

Press Models:

5000, 5500, 5600
7000, 7500, 7600
10000 (New 29" wide)

Press Speeds: Up to 120ppm 7 – Color / 240ppm Monochrome

Sheet Sizes: 12" x 18", 13" x 19"

Mactac® Recommended Applications: Retail signage, P.O.P., announcements, prime product identifications, marketing collateral (e.g. brochures, business cards, posters, etc.) photo specialty, direct mail, labels, folding cartons, flexible packaging, books, test marketing and product launches, manuals, and specialty applications. Customized and personalized promotions.

Mactac Recommended media (All topcoated for Indigo): Cinema® ITC (Indigo printable cast coated gloss), Matinee® ITC (Indigo printable semi-gloss), Lyric® ITC (Indigo printable matte coated litho), Blinding White 2 (smooth multipurpose uncoated litho), Preview ITC (Indigo printable 8pt C1S), 7pt Teslin® SP, Debut ITC (Indigo printable white vinyl permanent), Prestige ITC White (Indigo printable white vinyl ultra-removable), and Prestige Clear ITC (Indigo printable clear vinyl ultra-removable).



Toner Fusion Digital Presses — Narrow Format

These full color, high speed, digital presses offer high productivity, good print quality and good economics for short to high volume production runs with variable information capability. Such presses differentiate themselves from standard color toner fusion printers by their quality of print, speed, range of printable media, and high volume capabilities.

Press Manufactures, Models and Speeds:

Xerox iGen series: 90 – 110 ppm
Xerox DocuColor 7000 & 8000 Series: 52 – 80 ppm
Kodak NexPress Series: 70 ppm
Canon imagePress VP series: 60 ppm
Konica Minolta BizHub C70c: 70 – 80 ppm

Sheet Sizes: 8½" x 11", 12" x 18", 13 X 19"

Mactac Recommended Applications: Retail signage, P.O.P., announcements, prime product identifications, marketing collateral (e.g. brochures, business cards, posters, etc.) photo specialty, direct mail, labels, folding cartons, flexible packaging, books, test marketing and product launches, manuals, and specialty applications. Customized and personalized promotions.

Mactac Recommended Media: Cinema Digital (cast coated gloss), Matinee Digital (semi-gloss), Lyric Digital (matte coated litho), Novelty Digital (uncoated litho), Blinding White Digital (uncoated digital litho), Blinding White Digital 2 (smooth multipurpose uncoated litho), Bright White Uncoated (Cougar® opaque), Debut TF (white vinyl permanent), Prestige TF (white vinyl ultra-removable) and Prestige TF (clear vinyl ultra-removable).

Narrow Format Digital Printers

Direct Image Offset — Narrow Format

Direct Image Offset presses offer direct digital file to press set up, saving time and money by eliminating plates. These presses still employ standard offset inks for offset printing quality. This allows color matching for short runs production that must longer run production. They offer high productivity and improved economics for short to high volume production runs however they are not variable information capable.

Press Manufactures and Models:

Heidelberg DI Quickmaster 46 Series

KBA Karet 46 & 74

Ryobi 3404 DI

Adast 557 DI

Press Speeds: 1,500 – 12,000 sph.

Sheet Sizes: 8½" x 11", 11" x 17", 12" x 18", 13" x 19", 17" X 22"

Mactac® Recommended Applications: Retail signage, P.O.P., announcements, prime product identifications, marketing collateral (e.g. brochures, business cards, posters, etc.) photo specialty, direct mail, labels, folding cartons, flexible packaging, books, test marketing and product launches, manuals, and specialty applications.

Mactac Recommended Media: Cinema® Digital (cast coated gloss), Matinee® Digital (semi-gloss), Lyric® Digital (matte coated litho), Novelty® Digital (uncoated litho), Blinding White Digital (uncoated digital litho), Blinding White Digital 2 (smooth multipurpose uncoated litho), Bright White Uncoated (Cougar® opaque) and STARLINER® Offset products available in sizes compatible to specific press.



Toner Fusion Digital Printers — Narrow Format

These full color, low to medium speed, digital printers offer low to moderate productivity, good print quality and good economics for very short volume production runs with variable information capability. This type of equipment requires lighter, more flexible media.

Press Manufactures with Various Models:

Hewlett Packard

Lexmark

Canon

Kyocera

Konica/Minolta

Brother

Press Speeds: 20 to 30 ppm.

Sheet Sizes: 8½" x 11", 11" x 17"

Mactac Recommended Media: STARLINER® Label Die Cut Products with 40lb and 50lb liner

Digital Application Matrix												
Product	Category	Window	Floor	P.O.P/ Indoor	Trade show	Wraps	Boats	Museum	Light Box	Bus	Untreated Concrete	Walls
JT828P	Promotional											
JT829P	Promotional											
JT5529BFD PRO	B-free											
GV729BFD	B-free Gruv					Partial						
JT5796M BF	B-free Window Film											
JT5798M BF	B-free Window Film											
JT5999M BF	B-free											
GV529BFD	B-free Gruv											
GV429R	B-free Gruv											
JT5999R	Clear											
JT5728P	Translucent											
JT5828HTO	Intermediate											
JT5828P	Intermediate											
JT5828R	Intermediate											
JT5829P	Intermediate											
JT5829R	Intermediate											
DA012	DecoSatin™											
RR100	RoughRAP™											
STR328	StreepRap™											Outdoor
JT5916P	Window Perf					Window						
WP129	Window Perf					Window						
WN628	walNODLE™											
RO628	ROODLE™											
JDT429	IMAGin' digiTrans™											

REBEL™ Wide-Format Application Matrix												
Product	Description	Adhesive	Window	Floor	P.O.P/ Indoor	Trade show	Wraps	Boats	Museum	Bus	Walls	
RB528H	4.0 mil High-Performance Matte White PVC	High-Tack										
RB528P	4.0 mil High-Performance Matte White PVC	Permanent										
RB528R	4.0 mil High-Performance Matte White PVC	Removable										
RB529P	4.0 mil High-Performance Gloss White PVC	Permanent										
RB529R	3.4 mil High-Performance Gloss White PVC	Removable										
RB599H	4.0 mil High-Performance Gloss Clear PVC	High-Tack										
RB599R	6.0 mil High-Performance Gloss Clear PVC	Removable										
RB428P	3.4 mil Intermediate Matte White PVC	Permanent										
RB429P	3.4 mil Intermediate Gloss White PVC	Permanent										

STARLINER® Digital Narrow Format Application Matrix												
Product	Description	Adhesive	Narrow Format Print Type	P.O.P.	Marketing Collateral	Product ID.	Retail Signage	Product Launches	Test Marketing	Labels	Drum Labeling	Outdoor Signage
Cinema® ITC	Cast Coated Gloss	Permanent	Indigo	1	1	1	2	1	1	1		
Matinee® ITC	Semi Gloss	Permanent	Indigo	1	1	1	1	1	1	1		
Lyric® ITC	Matte Litho	Permanent	Indigo	1	1	1	1	1	1	1		
Novelty® ITC	Uncoated Litho	Permanent	Indigo	1	2	1	1	1	1	1	2	
Blinding White 2	Uncoated Multi-purpose Litho	Permanent	Indigo, Toner Fusion & Direct Image Offset	1	1	1	1	1	1	1		
Preview ITC	8pt Coated Tag	Permanent	Indigo	1	1		1		1	1		
Teslin	Teslin	Permanent	Indigo	1			2			1	1	1
Debut White ITC	3.4 mil White PVC	Permanent	Indigo	1		2	1		2	1	1	1
Prestige White ITC	3.4 mil white PVC	Ultra-removable	Indigo	1		2	1		2	1	1	1
Prestige Clear ITC	3.4 mil Clear PVC	Ultra-removable	Indigo	1		2	1		2	1	1	1
Cinema Digital	Cast Coated Gloss	Permanent	Toner Fusion & Direct Image Offset	1	1	1	2	1	1	1		
Matinee Digital	Semi Gloss	Permanent	Toner Fusion & Direct Image Offset	1	1	1	1	1	1	1		
Lyric Digital	Matte Litho	Permanent	Toner Fusion & Direct Image Offset	1	1	1	1	1	1	1		
Novelty Digital	Uncoated Litho	Permanent	Toner Fusion & Direct Image Offset	1	2	1	1	1	1	1	2	
Cougar® Opaque	Bright White Uncoated	Permanent	Toner Fusion & Direct Image Offset	1	1	1	1	1	1	1		
Debut White ITC	3.4 mil White PVC	Permanent	Toner Fusion	1		2	1		2	1	1	1
Prestige White ITC	3.4 mil white PVC	Ultra-removable	Toner Fusion	1		2	1		2	1	1	1
Prestige Clear ITC	3.4 mil Clear PVC	Ultra-removable	Toner Fusion	1		2	1		2	1	1	1
STARLINER®	50# Uncoated	Permanent	Laser Toner	2	2	1	1	1	1	1	2	
STARLINER	60# Semi-Gloss	Permanent	Laser Toner	1	1	1	1	1	1	1		
STARLINER	60# Matte Coated	Permanent	Laser Toner	1	1	1	1	1	1	1		

1 - Best 2 - Good

IMPORTANT NOTICE: The information given and the recommendations made herein are based on our research and are believed to be accurate, but no guarantee of their accuracy or completeness is made. In every case, user shall determine before using any product in full scale production, or in any way, whether such product is suitable for user's intended use for their particular purpose under their own operating conditions. User assumes all risk and liability whatsoever in connection with their use of any product. The products discussed herein are sold without any warranty as to merchantability or fitness for a particular purpose, or any other warranty, express or implied. No representative of ours has any authority to waive or change the foregoing provisions, and no statement or recommendation not contained herein shall have any force of effect unless in an agreement signed by the officers of seller and manufacturer. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent without authority from the owner of the patent. The following is made in lieu of all warranties, express or implied: Seller's and manufacturer's only obligation shall be to replace or credit such quantity of the product proved to be defective at its discretion.

