Cat-i Glass

Glass Printing and Ink Types Pros & Cons

Frit (Ceramic) Inks

Pros

- Frit fuses on the surface of the glass (most durable)
- Cured during the tempering process - limited additional processing due to permanency
- High abrasion resistance
- Adhesives bonding directly to the glass through the ink

Cons

- Line definition is not as crisp as an epoxy ink, especially with single hits
- Line weights need to be larger (.010” minimum for positives)
- Color matching is more time consuming
- Opacity is not as high as an epoxy ink
  (roughly 1.0 OD difference in black)
- Dead-fronts are limited
- Heat tempered glass will have inherent warp and surface distortion
- Glass substrates require 3mm minimum thickness (2mm is possible, but 3mm is standard)

Epoxy (Organic) Inks

Pros

- Great line definition
- Smaller line weights can be used (.005 -.010” minimum recommended for positives)
- Unlimited color selection (any Pantone color can be matched)
- Mirror and metallic flake appearance inks available
- Can be applied to any thickness of glass

Cons

- Not as durable as a frit
- Would have to be printed after tempering
- Will become brittle in high temperatures (over 400F for an hour or longer)
- Lacking long-term performance in salt fog or marine environments compared to frit

UV (Organic) Inks

Pros

- Great line definition
- Smaller line weights can be used (.005 -.010” minimum recommended for positives)
- Unlimited color selection (any Pantone color can be matched)
- metallic flake appearance inks available
- Can be applied to any thickness of glass
- Fast curing times
- UV stable (Will not degrade in UV light)

Cons

- Not as durable as a frit or epoxy
- Would have to be printed after tempering
- Will become brittle in high temperatures (over 400F for an hour or longer)
- Lacking long-term performance in salt fog or marine environments compared to frit
- Whites tend to yellow over time

Screen-Print Vs Digital Printing

Screen-Printing

Pros

- Minimal ink thickness per layer (two ink layers will be around .0015”)
- Greater optical density

Cons

- Need a Screen for each printing layer
- Setup times
- Inability to change artwork / revs on the fly without new artwork and screens being made

Digital Printing

Pros

- No Screens required
- Can change part numbers on the fly
- Single setup for all colors/layers

Cons

- Line definition is improving with technology, but does not match screen-print definition
- Currently cannot print metallic inks
- Thick ink stack-ups (typical thickness is approx. .010”)
- Sensor/film bonding difficulty with CVA due to ink thickness
- Slower process

Digital Printing: Organic vs Frit

Organic

Pros

- CMYK Color Matching
- Deadfront capable

Cons

- Primer application or printing layer
- CVA crispness with primer
- Ink thickness for bonding
- Lightsteadfastness

Frit

Pros

- Durability
- Opacity
- Ink Thickness matches screen printing
- Deadfront Capable
- High Opacity
- Spot color (not CMYK)

Cons

- Color matching of inks required (spot color)
- Requires tempering of glass substrates

Pre-Press Guidelines

Pre-Press Guidelines

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Cat-i Glass is dedicated to providing our customers with the best possible screen printed products while meeting important deadlines. We appreciate your assistance in following the guidelines outlined below to ensure your receipt of an accurate and on-time screen printed glass product.

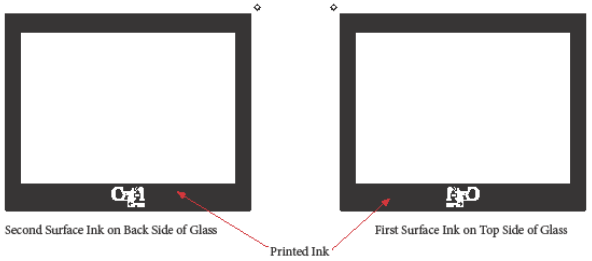
Applications:
Cat-i Glass Pre-Press Department is PC/Windows based using the following software packages:

- Adobe Illustrator - **.AI**
- Adobe InDesign - **.INDD**
- AutoCAD - **.DXF or .DWG**
- CorelDraw - **.CDR**

Native files generated from the above software packages are associated with the file extensions noted above. If the artwork has been created in a program other than the listed products above, the file should be saved as a **.PDF** or **.EPS** file extension. It is always best to send files that need screen print in AI format. **Files created in CAD or CAD programs will cause artwork to look choppy especially if there are logos, icons, radii, or circles.**

Indexing/Datum Corner:
All files submitted should have an indexing and/or datum corner reference. When the file is drawn as a second surface image (ink is viewed through the glass) indexing and dimensioning should be drawn from the top right corner as shown in Figure A. When the file is drawn as a first surface image (ink is viewed on top of the glass) indexing and dimensioning should be drawn from the top left corner as shown in Figure B.

Figure A **Figure B**



Stockpile/Sales/Documents/Downloads