

What is Pad Printing?

- Versatile process
- Print on 3 dimensional objects
- Derived from the screen, rubber stamp and photogravure processes

Common Pad Printing Applications

<ul style="list-style-type: none"> • containers • appliances • control buttons • automotive parts • injection molded parts • furniture accessories • toys and hobby parts • promotional products • medical products • name plates • face plates 	<ul style="list-style-type: none"> • golf ball printing • baseballs • softballs • frisbees • bottles • light bulbs • clips • handles • knobs • industrial parts • industrial pumps
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Pad Printed Products

<p style="text-align: center;">Blow Molded Products</p>	<p style="text-align: center;">Luggage</p>
<p style="text-align: center;">Medical Products</p>	<p style="text-align: center;">Toothbrushes</p>

Large Format Pad Printing

- Appliance panels
- Printed in multi-step process

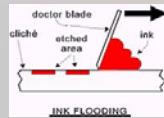
- Model cars are pad printed rather than using decals

Multipad closeup

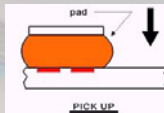
Art used with permission: Pad Print Machinery of VT., Inc.

How Pad Printing Works

- Step #1, Flooding- The image in the cliché is inked and then doctored



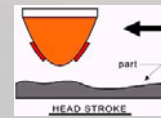
- Step #2, Pickup – The pad is positioned over the image and picks up the ink



Art used with permission: Service Tectonics, Inc.

How Pad Printing Works

- Step #3, Print Stroke – from the cliché to the part, solvent evaporates from the ink
- Step #4, Ink Deposit – the pad conforms to the part leaving ink



Art used with permission: Service Tectonics, Inc.

How Pad Printing Works

- Step #5, Pad Release – pad lifts away from part and returns to original shape, clear of ink



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Open vs. Closed Systems

- Open system
 - Ink trough
 - Larger images
- Closed or Sealed Cup
 - Uses less ink
 - More control, less evaporation
 - Faster color changes
 - Image size limitations



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Open system printing on irregular shaped objects



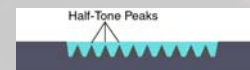
Automated two-color system



Four head operation

Plate or Cliché Exposure

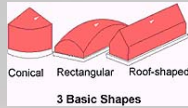
- 2 exposures
 - First to the image
 - Second with a half-tone screen
 - Controls depth of the etch
 - Forms a dot pattern to support the doctor blade
 - Prevents ink flow when the pad is compressed



Art used with permission: Pad Print Machinery of VT., Inc.

The Pad

- Formulation of a silicone base material, silicone oil, and a catalyst
- Size and shape of pad used is determined by the part
- Set up so point is not in the image area



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Inks

- Pad Inks
 - Thick ink film – 4-6 microns
 - 20% pigment
 - Fast evaporating solvents
- Screen Printing Inks
 - Thick ink film – 30 microns
 - 5% pigment
 - Slower evaporating solvents

Pad Printing Limitations

- Works best with solvent based inks
- Parts printed need higher surface energy than the pad
 - Some require pre-treating
- Small image areas required
- Finished ink film thickness of approximately .00025" to .0003"

Websites

- <http://www.screenweb.com/pad/>
 - Screen Web, The Internet's Largest Screen Printing Resource
- <http://www.padprinting.net/theprocess.htm>
 - The Pad Printing Network, Service Tectonics, Inc.
- <http://www.itwtranstech.com/Pages/how.html>
 - Pad printing diagramed, Trans Tech America Inc.
- <http://mail.jujo-chemical.co.jp/english/info4/PAD-TS.htm>
 - How to Solve the Problems of Pad Printing, Jujo Chemical Co. Ltd.

- <http://www.padprint1.com/articles/PrintingOverview.html>
 - A Basic Overview of The Padprinting Process, Comec Pad Printing Machinery of VT, Inc.
- <http://www.satvampastics.com/kinnaripadflex/kinnaripadflex2.html>
 - Pad Printing Technology, Kinnari's Pad Flex
- <http://www.autotran.net/process.php>
 - Closed cup printing automation, AutoTran, Inc.,

