

## **GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES** **COMPARISON OF CONVENTIONAL & DIGITAL FLEXO PLATE MAKING** **PROCESS FOR ACHIEVING SMALLER DOTS, HIGHER LINE COUNTS; &** **CONSISTENCY**

**(A Case study of Akriti Printers, Manesar & Truflex India, Baddi)**

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### **ABSTRACT**

This study was carried out at Akriti Printers, Manesar & Truflex India, Baddi. Flexography is mainly used for above average quality jobs. Printing is the second largest industry of India. We are basically providing services to the society; being overlapped by various branches of Education like Computers, Electronics, Manufacturing, Chemical, Electrical, Optical and, what not? It is impossible to imagine survival of human beings without Printing. Sir Johannes Gutenberg, Father of Printing, was declared as 'Man of Millennium' by Time magazine. And, Printing is declared as the 'Greatest Invention of Millennium' again, by Time magazine. Present era is meant for the 'Survival of the Fittest'. And, this is where Printing has touched one and all.

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### **I. INTRODUCTION**

At Akriti Printers, Manesar&Truflex India, Baddi, this study was conducted. This study is to analysis Flexo plate making process and compares the conventional and digital plate making process in conventional and Digital press houses

### **II. RESEARCH OBJECTIVE**

The objective of this study is to analysis Flexo plate making process and compares the conventional and digital plate making process in conventional and Digital press houses.

### **III. RESEARCH METHODOLOGY**

The whole study has been divided in 3 sub parts with complete understanding of flexographic plate making process along with the cost, efficiency, consumption of time in conventional and digital plate making process and advantage of digital flexographic plates.

The following methodology was adopted during the study.

1. Study of conventional plate making process, equipment and materials.
2. Study of Digital plate making process, equipment and materials.
3. Comparison between conventional Flexo and Digital plate making process.

### **IV. DATA COLLECTION**

CONVENTIONAL FLEXO PLATE MAKING PROCESS AT TRUFLEX INDIA, BADDI

Profile of Organization

Truflex India is flexographic prepress trade shop, working with its expertise to provide stronger "value added" service to the printing industry.

Truflex India as trade shop provides flexo and letterpress plates to various print converters.

- Lamitube Printer
- Corrugation Printer
- Offset Printer
- PP Bags Printer

#### DETAILS OF EQUIPMENT'S AND MATERIAL USED AT TRUFLEX INDIA (CONVENTIONAL FLEXO PREPRESS HOUSE)

##### Equipments

- Agfa Avantra 20-25 OLP (Image Setter)
- D Graph 2530, Inglese –All in One, (Water washable plate exposure, washer, dryer)
- Tower type 2530, AGI-6RL– All in One (Solvent washable plate exposure, washer, dryer)

##### Materials

- Fujifilm – Benefit(Imaging Film) Roll of different Size -12”, 14”, 16”, 18”
- Fujifilm Processing Chemical Benefit D1 & F1– Developer, Fixer (5 Ltr. Can)
- Conventional/Analog Flexo Plates (Solvent Wash) Company – DuPont( Cyrel) Plate thickness - 2.84 mm, 3.9 mm, 4.7 mm
- Conventional Letterpress Plates (Water wash) Company- Toray (DG 95) Toyobo - MC, GC Plate thickness- 0.95mm
- Flexo Plate processing chemicals Perclow(PCE) &Butanol (NBA)

#### CONVENTIONAL LETTERPRESS PLATE MAKING PROCESS & PARAMETERS

Main Exposure time (Front)	-	90 sec
Back Exposure time	-	120 sec
Washing time	-	90 sec
Drying Time	-	20 min @ 75 Degree C
Post Exposure time	-	90 sec

#### Conventional Flexo plate making process & Parameters

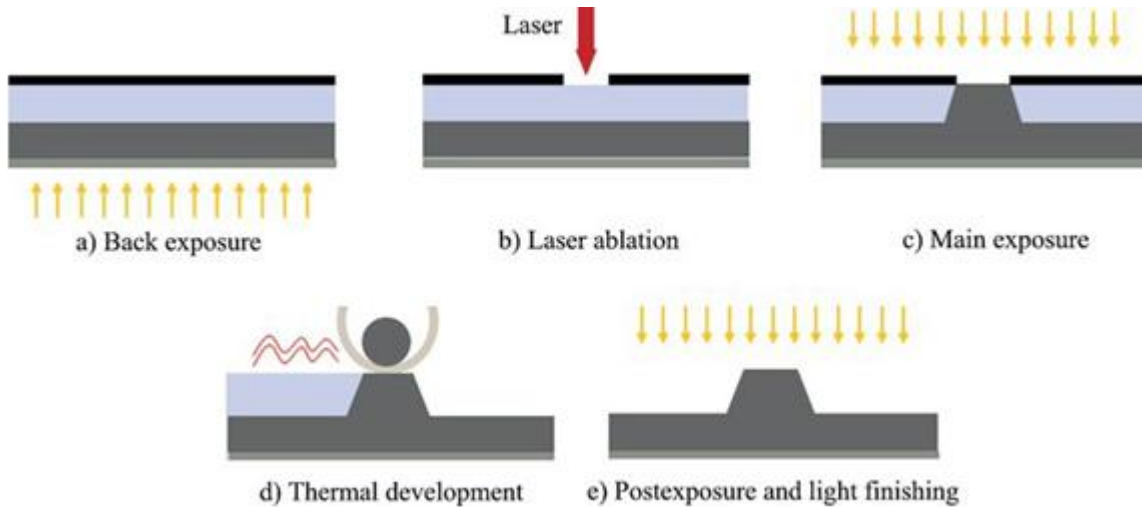
Back Exposure time	-	1 min 40 sec
Main Exposure time	-	15 min
Washing time 5 min	-	6 min (Clock wise)
Drying time	-	90 min
Post Exp. (Front) time	-	5 min
Curing time (UV-C)	-	6 min

#### CONVENTIONALFLEXO/LETTERPRESSPLATEMAKINGDETAILS

Sr. No	Name ofJobs	Dates	Plate Used	Plate Quality Issue	Wastageof Plate
1.	Burno	22/1/18	Toray	No	No
2	Henna	23/1/18	Toray	No	No
3	Fair Soft	24/1/18	Toyobo	yes	Remake due to Dot issue
4	Cosmo	29/1/18	Toray	No	No

5	Herbal Toothpaste	30/1/18	Toyobo	No	No
6	Fastgel	2/2/18	Toyobo	No	No
7	Pain Relief	5/2/18	Toyobo	No	No
8	XpGel	6/2/18	Toray	yes	Remake due to Dot issue
9	Glow pack	8/2/18	Toray	No	No
10	Fresh	12/2/18	Toyobo	No	No
11	Betasol	15/2/18	Toray	No	No
12	I-Gurad	19/2/18	Toray	No	No
13	FFglow	20/2/18	Toray	yes	Color correction
14	Sensitive	23/2/18	Toyobo	No	No
15	Act-fast	27/2/18	Toray	No	No

**DIGITAL FLEXO PLATE**



**V. RESULT&DISCUSSION**

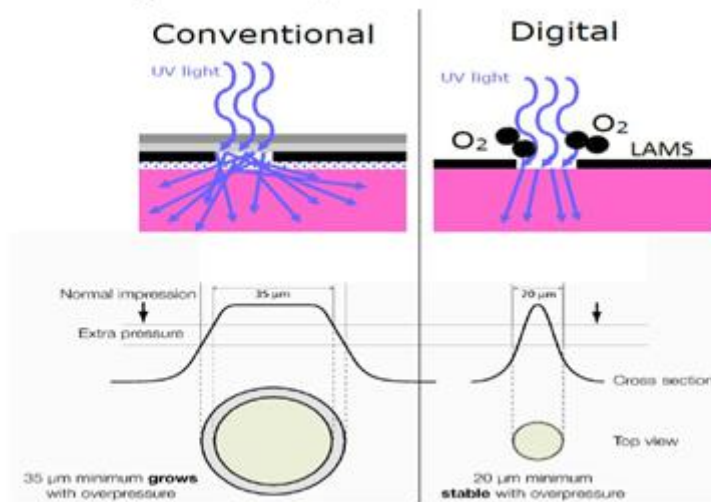
We analyzed the plate cost, processing cost and difference between qualities of both plates which will help the Flexography printer to improve their printing qualities and increase efficiencies of Printing machine.

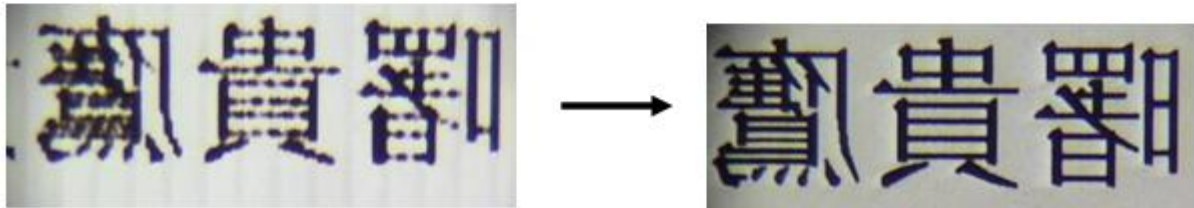
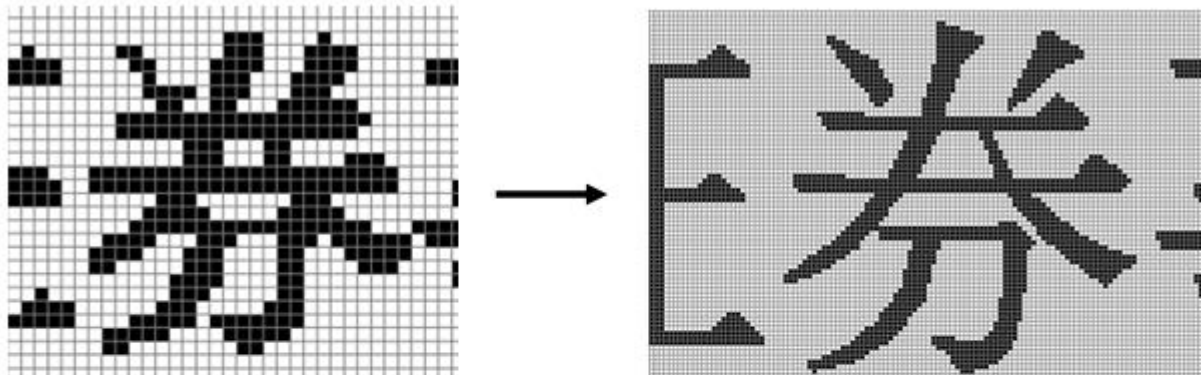
**Digital vs. Conventional**

1. More open reverses
  - Conventional limited to 8pt negative text

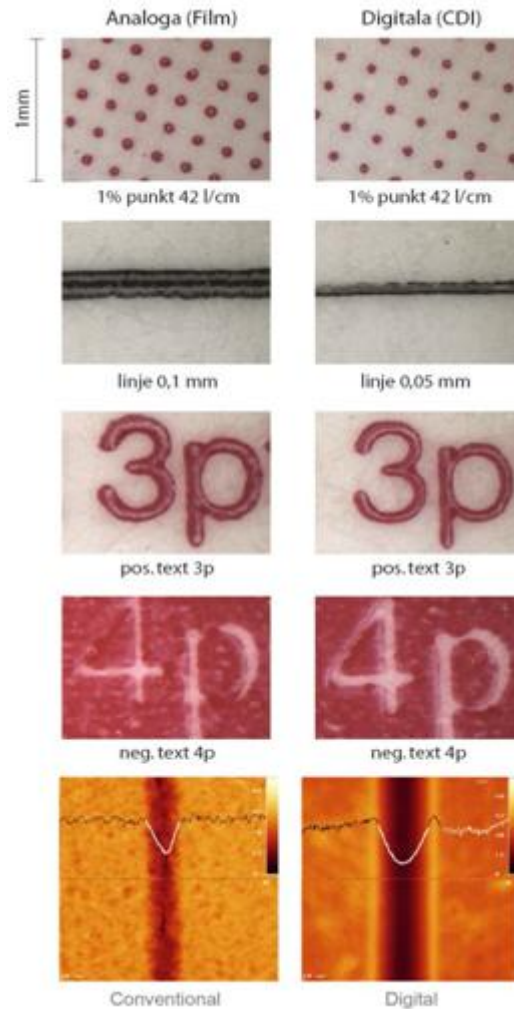
- Digital easily keeps 2pt negative text open
- 2. **Smaller minimum dot**
  - Conventional minimum dot: 6%
  - Digital minimum dot: 1%
- 3. **Higher line-counts**
  - Conventional limited to 85 lpi
  - Digital up to 133 lpi possible
- 4. **Consistency & Repeatability**
  - Conventional: contact problems during UV-Exposure +chemistry effects
  - Digital: standardization by highest consistency and repeatability

**Benefits of digital flexo plates**





- Print quality improvement
- Higher dot definition
- More open reverses
- Finer print Details
- Extended tonal Range
- Digital Flexo is the only solution for extended tonal range.
- All film based quality improvements Always lead into trade-offs



Benefits of digital flexo plates (MoneySaving)

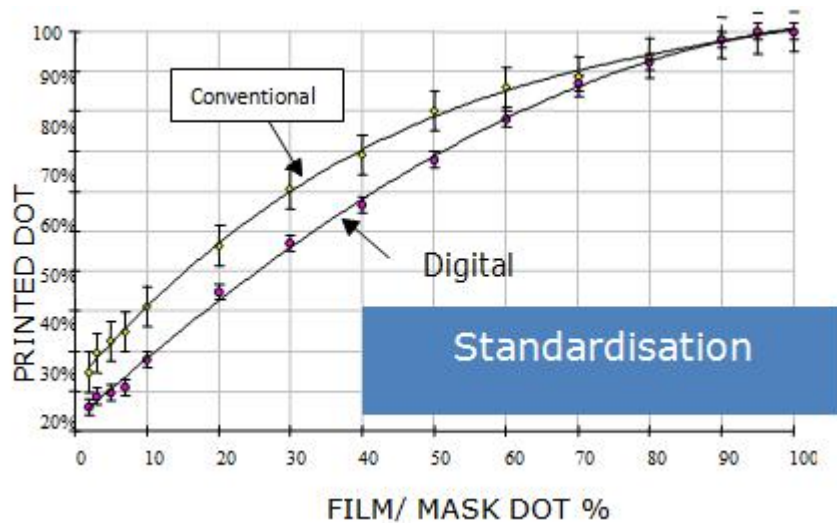
**About 18% general savings in plate making department**

- No film storage
- No solvents
- Less handling steps
- Less errors due to digital data
- Faster throughput

**Higher press utilization**

- Higher print quality possible
- Faster press setup due to high plate quality and high plate consistency (10 – 15%)
- Less spoilage (10 – 20%)
- Higher runs lengths (at same quality like conventional plates)
- Due to better shaped dots
- Longer cleaning intervals
- Due to better shaped dots





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