



The New Way of Printing Flexible Packaging



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Typical, Current EB Litho Press Technology

- **In-line presses**
Separate free-standing printing units in a line
- **Several suppliers**
European manufacture
- **Limited substrates**
Mostly paperboard, polyboard or paper
A small amount of plastic film
- **Limited applications**
Mostly folding carton
Some flexible packaging on paper
Some labels





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Current EB Litho Technology is Very Effective

- **Proven process**
 - Commercial production since 1980
 - Well-established supply chain of raw materials
- **Very low migration technology**
 - Widely used in food packaging
- **Wet-trapping**
 - One EB curing unit at the end of the press
- **Low-temperature curing**
 - EB unit does not heat the substrate
- **Nitrogen purging required**
 - Web printing only





Web Printing Only

- **Pulls web taut on in-line press**
Substrate is unsupported
- **Extensible substrates → Registration problems**
Amount of substrate distortion varies
- **Small % of production using plastic films**
Polyester, PET, PP
- **No one running PE film**
Too stretchy to be pulled taut unsupported





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Today's EB Litho Press 'looks like' a Litho Press!





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Most Printers Buy Litho Press Products a la carte

- Ink
- Coating
- Fountain solution
- Blankets
- Rollers
- Plates
- Press wash





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Some Recent EB Litho Presses Targeted Flexible Packaging Market

- **Little Penetration**

- Strange look (vs. a CI press)

- Larger footprint (vs. a CI press)

- Different print format

- New technology to these printers

- a la carte RM purchasing is complicated

- Problem with extensible film





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Creating a New EB Litho Printing Technology

- **Attempts to Solve Earlier Issues**

 - A new look, like a CI press

 - A similar footprint to a CI press

 - New technology, but more comfortable

 - Provide a turn-key package of proven press chemistry

 - Proven capability to run extensible film

- **Plus the Environmental Advantages of EB**

 - Low VOC, low emissions, low temperature curing

- **Plus the Print Quality Advantages of EB**





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Creating a New EB Litho Printing Technology





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The new way of printing flexible packaging

The COMEXI **OFFSET C18** EB is the latest solution for high-quality short and medium run jobs

- Up to 8 **offset printing** units arranged around a **central impression** drum.
- **Flexo printing** units are also possible for white or lacquer finishing.
- The innovative idea is to unite the **advantages** of both offset and flexo central impression printing in one press for **flexible packaging**.
- With solvent free **EB curing inks**, with low impact on the **environment**.



The Goal

To transform the Flexible Packaging industry toward Sustainability



Flexible packaging uses mainly Flexo or Rotogravure solvent base inks

Even if all this solvent is incinerated, there is high energy needed (CO₂ carbon footprint) and residual VOC still remains.

425,000 Ton OF VOC
YEARLY EMITTED



8,000,000 Ton CO₂

80,000 Ton of VOC



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More Sustainable printing

- Energy reduction (EB curing)
- Reduction of colors easy feasible (4 color process)
- Solvent elimination (EB curing)
- Substrate waste reduction (Fast color set)

Quality printing

- Offset standards
- Fine screens (60 to 120 L/cm)
- Various screening options (AM & FM)
- Best color-to-color register

by Central Impression Cylinder





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Prepress technology

- Fast plate making (In-house prepress)
- Low cost print form (Aluminum litho plate)
- High quality print form & various screening



Stochastic and AM screening

Sleeve cylinder technology

- Fast cylinder preparation (Off press)
- Easy cylinder exchange
- Variable repeat length (Infinite steps)



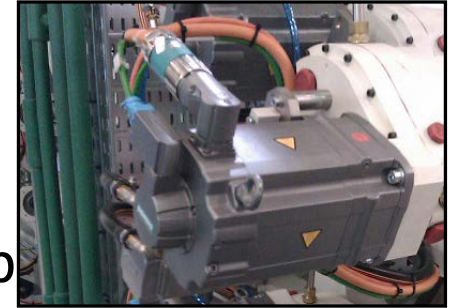
Light weight cylinders





Servo drive technology

- Fast and accurate register & Auto job set-up
- Auto positioning of the cylinders
- Auto positioning of the print units



Servo technology

High degree of automation

- Auto ink key setting (CIP3 ink profile)
- Auto ink water balance (Combined ink & water curves)
- Auto pre-inking
- Auto roller washing



Auto ink-key control





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Product fragmentation

Flexible Packaging

Traditional consumer flexible packaging markets facing job fragmentation and are looking for **cost effective**

and **sustainable** solutions.

- Replace solvent based technology on short/medium run jobs
- Demand for printing quality to replace gravure
- Basically Food Market (Photoinitiators are problematic)
- Job length between 3,000 and 50,000 m²
- Standard film structures





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Labels

- Focus on short and mid-run jobs
- Narrow and mid-web label converters using in-line printing.
- Wide web label converters facing job fragmentation
- Increasing demand for printing quality





COMEXI OFFSET **CI8**

Product specifications:

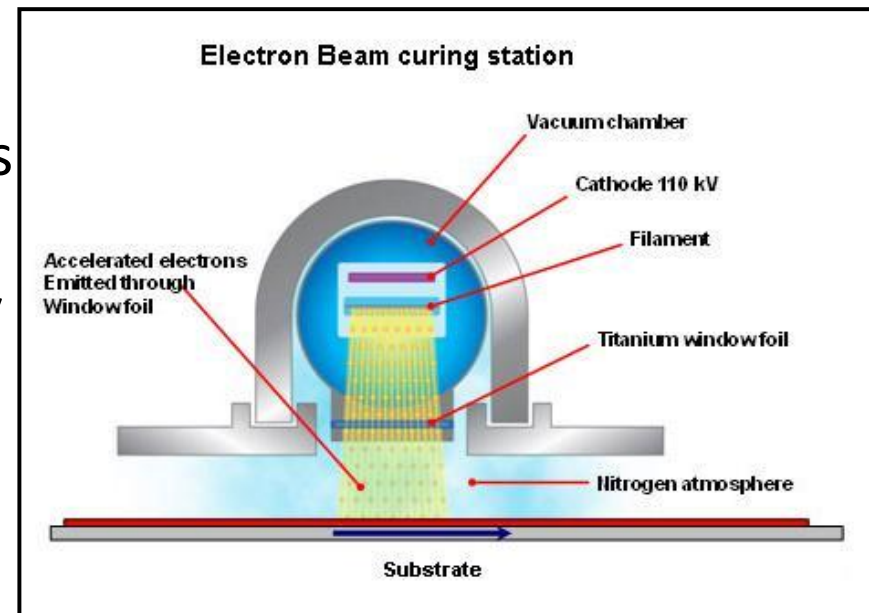
Initial model	Up to 7 colors + white or lacquer
Materials	Plastic films Paper Aluminum
Ink	Electron Beam
Material Width	860 mm
Printing Width	840 mm
Print repeat	Variable (infinite steps)
Min. Repeat	455 mm
Max. Repeat	930 mm
Mandrel Diameter	111 mm
Drum Diameter	3000 mm
Speed	300 m/min (400 m/min)
Unwind	Shaft less single type (Duplex shaft optional)
Rewind	Shaft less single type (Duplex shaft optional)
Electronics	Siemens Simotion
Pneumatics	Festo





More Sustainable printing with EB curing technology!

- No solvents
- No photo initiators
- No heat impact on substrate
- No heat impact on adjacent parts
- Lower energy consumption
- Common and mature technology



COMEXI GROUP: THE MEETING POINT OF
SUSTAINABLE INNOVATION

THANK YOU

