

NARROW-WEB IN LINE FLEXO PRINTING IN THE FLEXIBLE PACKAGING MARKET

Narrow-Web Flexible Packaging Summit 2017
November 9th | APR | Chicago | USA
Dario De Meo, Bobst Firenze



NARROW-WEB IN LINE FLEXO PRINTING IN THE FLEXIBLE PACKAGING MARKET

- **About BOBST Firenze**
- **Flexible Packaging Market Overview**
- **BOBST Firenze Solutions**
- **What Can We Offer Better Than Others?**





ABOUT BOBST FIRENZE

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The BOBST product range for the Label & Packaging Industry

Assimilated into the BOBST brand in September 2015, BOBST Firenze brings its know-how and experience providing exclusive press technology for the **inline narrow and mid-web** printing and converting of **labels and packaging**.



ABOUT BOBST FIRENZE

The BOBST product range for the Label & Packaging Industry

BOBST's 'Centre of Excellence' for In-line flexo press:

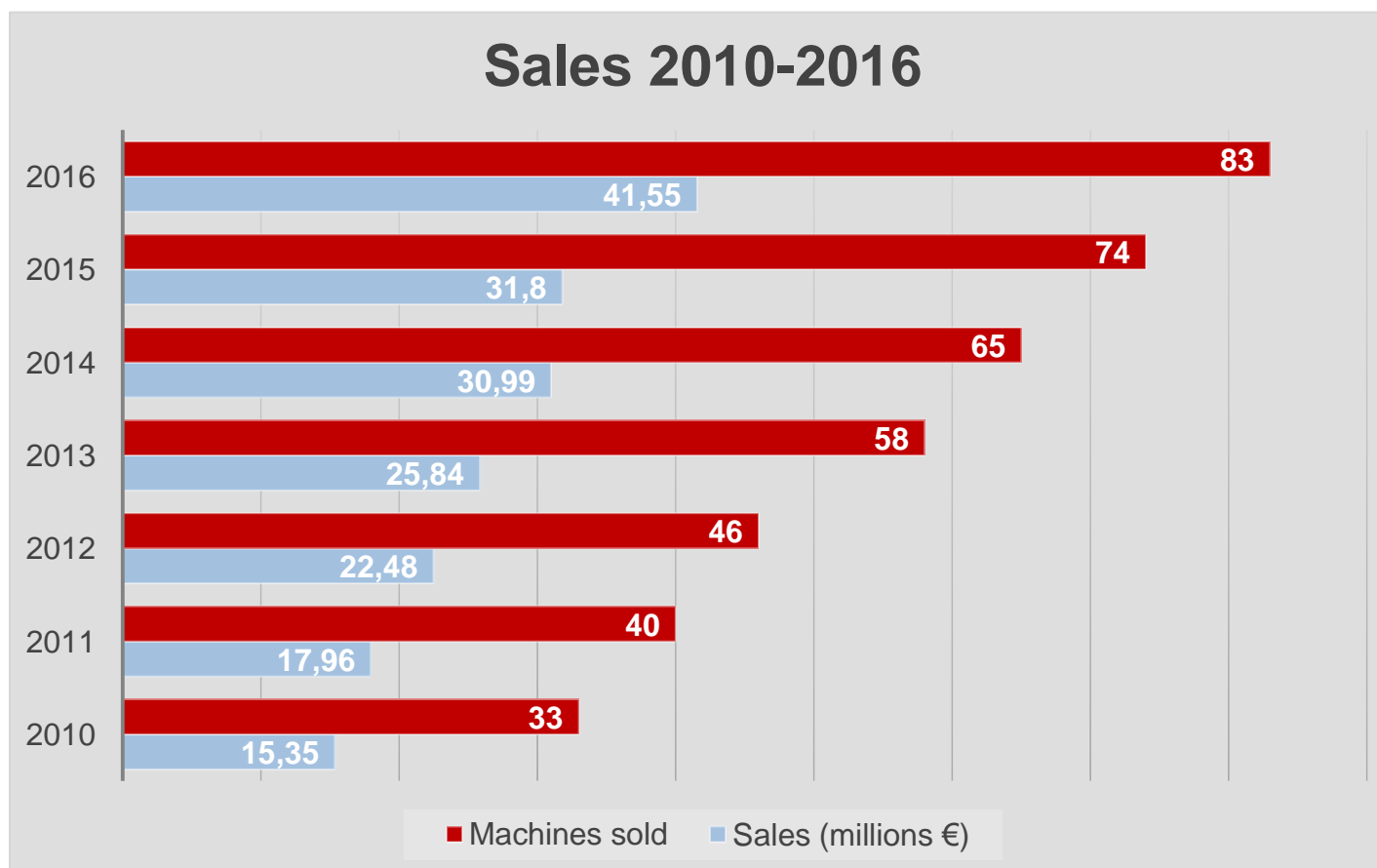
Research & development
Competence Center
Engineering
Manufacturing
Machine assembly
Conditioning
Training

FLORENCE – ITALY
Bobst Firenze S.r.l.
Via Fratelli Cervi 76
50013 Campi Bisenzio (FI)



BOBST FIRENZE IN NUMBERS

Sales Data



BOBST FIRENZE IN NUMBERS

Our staff

2010	2011	2012	2013	2014	2015	2016	June 2017	End 2017
30	36	39	45	51	68	83	95	→ 115

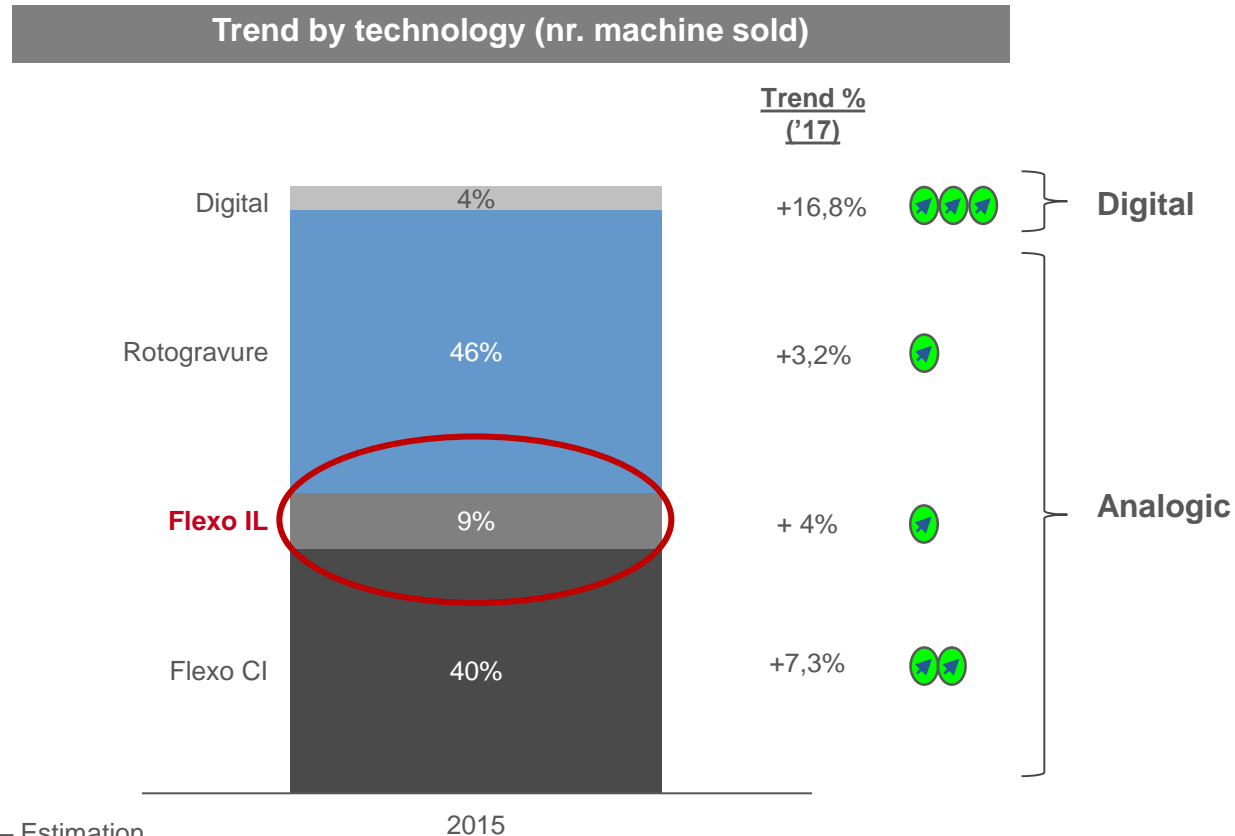




FLEXIBLE PACKAGING MARKET OVERVIEW

GLOBAL MARKET OVERVIEW

Flexible Packaging



Source: L&L March 2017 – Estimation

Note: Flexo is the predominant printing process in NA (65% IL+CI)
Gravure is predominant in SE Asia

REFERENCE MARKET

End Product Packaging Solutions

Flexible Packaging					
End markets	Food	Frozen food	Pet food	Drinks	Cosmetics
Flexible Packaging Typical Job Composition					
	• 8/10 colors	• 8 colors	• 8/10 colors	• 8 colors	• 6/8 colors
Technology in use	<ul style="list-style-type: none"> • CI Flexo • Rotogravure • IL Flexo 	<ul style="list-style-type: none"> • CI Flexo • Rotogravure • [Minor] IL Flexo 	<ul style="list-style-type: none"> • CI Flexo • Rotogravure • IL Flexo 	<ul style="list-style-type: none"> • CI Flexo • Rotogravure • [Minor] IL Flexo 	<ul style="list-style-type: none"> • CI Flexo • Rotogravure • IL Flexo
	Compliance Requirements	✓ Migration Compliance	✓ Migration Compliance	✓ Migration Compliance	✓ Migration Compliance
Bobst Firenze presence					

● Low
● High

The reference segment of Flexible Packaging for Bobst Firenze is represented by narrow web

FLEXO INK TECHNOLOGIES OVERVIEW

		Flexo IL			Flexo CI		
ENERGY CURABLE INK (UV-LED INK / E-BEAM)	Market share	Trend	Advantages <ul style="list-style-type: none"> Higher Flexibility the CI due to fast batch change (1 min) → possibility of shorter runs Print quality (Dot gain and color consistency) 	Constraints <ul style="list-style-type: none"> Lower productivity than CI due to short run Higher contamination risk perception than SW in the Food Industry 	Trend	Advantages <ul style="list-style-type: none"> Higher productivity than IL Higher Print quality than SW (Dot gain and color consistency) 	Constraints <ul style="list-style-type: none"> Higher costs than IL Lower flexibility than IL Higher contamination risk perception than SW in the Food Industry
			Fitting market segments for applications <ul style="list-style-type: none"> Secondary Packaging & Non Food Best for short run 	Fitting market segments for applications <ul style="list-style-type: none"> Secondary Packaging, Non Food & stretchable materials Best for mid-long run 			
Solvent Water based	Market share	Trend	Advantages <ul style="list-style-type: none"> Better perception than UV in the food industry Higher Flexibility than CI due to fast batch change 	Constraints <ul style="list-style-type: none"> Lower printing quality (Dot Gain, Color consistency) Lower productivity than CI due to lower speed 	Trend	Advantages <ul style="list-style-type: none"> Higher productivity than IL Better handling of stretchable materials 	Constraints <ul style="list-style-type: none"> Lower flexibility than IL Lower printing quality (Dot Gain, Color consistency)
	Water	Market share	Trend	Advantages <ul style="list-style-type: none"> Investment costs higher for Solvent Based machines vs UV 	Constraints <ul style="list-style-type: none"> Investment costs higher for Solvent Based machines vs UV 	Trend	Advantages <ul style="list-style-type: none"> Investment costs higher for Solvent Based machines vs UV
			Fitting market segments for applications <ul style="list-style-type: none"> All 	Fitting market segments for applications <ul style="list-style-type: none"> All 			

Today Flexo IL – UV Ink can cover a small, but growing part of market potential.

FLEXIBLE PACKAGING MATERIALS

Critical Aspects



NARROW WEB ADVANTAGES

Why In Line Flexo?

New Consumers trend

- Brand Owners need differentiations
- More choice for consumers' tastes



Short Runs

- Packaging samples pre-production
- Personalization



NARROW WEB ADVANTAGES

Why UV/LED Flexo?

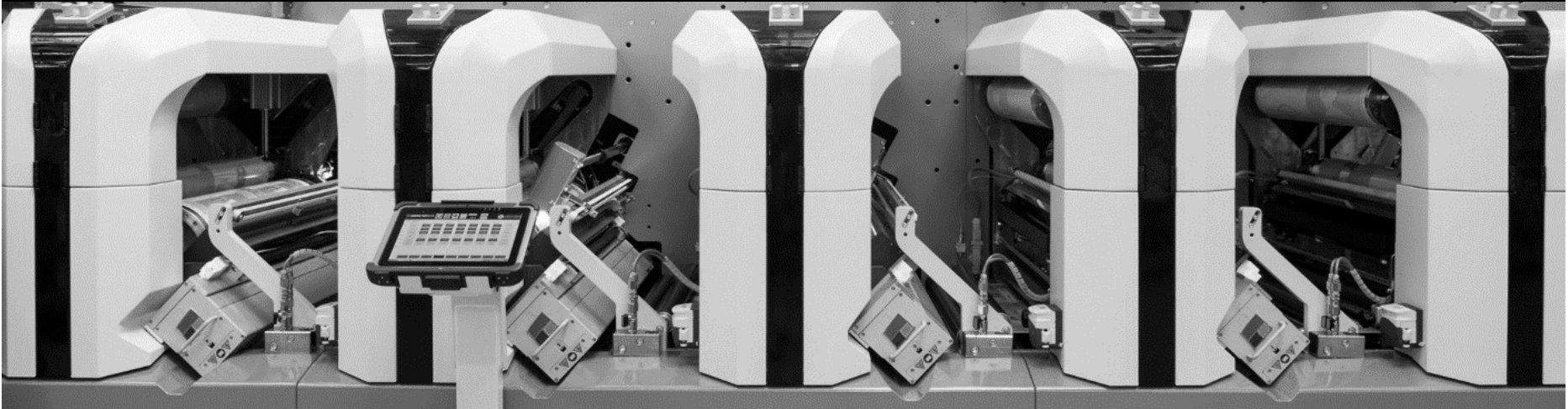
UV and LED Flexo printing has been used with success in the labels and flexible packaging industry.

- Higher color stability, repeatability and consistency of color
- High print definition
- Low ink waste (re-usable)
- Easy handling of inks
- Overnight washing not required
- Low migration inks availability





BOBST FIRENZE PRODUCT SOLUTIONS



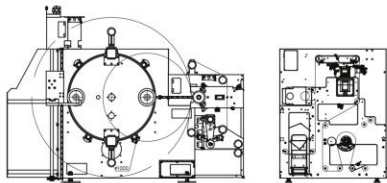
NARROW WEB ADVANTAGES

Why In Line ?

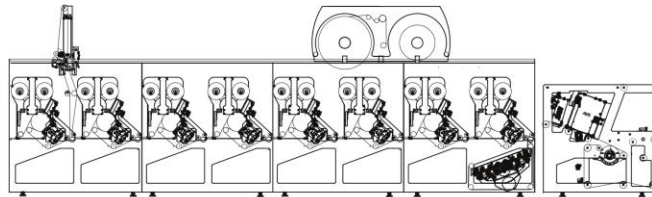
IN LINE MULTI PROCESSES JUST IN ONE PATH

FLEXO UV – LED – WATER BASED INKS

**AUTOMATIC
UNWINDER**



**TURN
BAR**



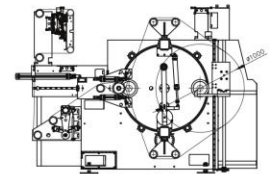
**COMBO
LAMINATOR**



**LONG PATH
VARNISH**



**AUTOMATIC
REWINDER**



NARROW WEB ADVANTAGES

Why In Line ?

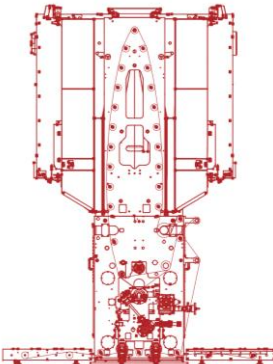
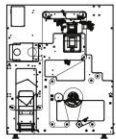
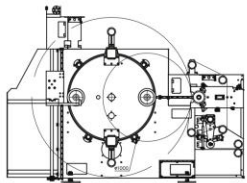
IN LINE MULTI PROCESSES JUST IN ONE PATH

FLEXO UV – LED – WATER BASED INKS

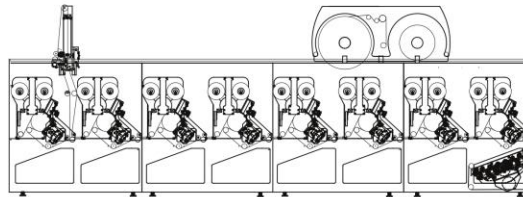
**GRAVURE
SOLVENT/WATER BASED**

**SOLVENTLESS
LAMINATION**

**AUTOMATIC
UNWINDER**

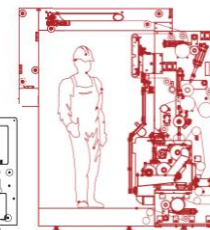


**TURN
BAR**

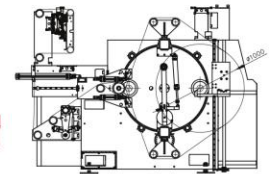


**COMBO
LAMINATOR**

**LONG PATH
VARNISH**

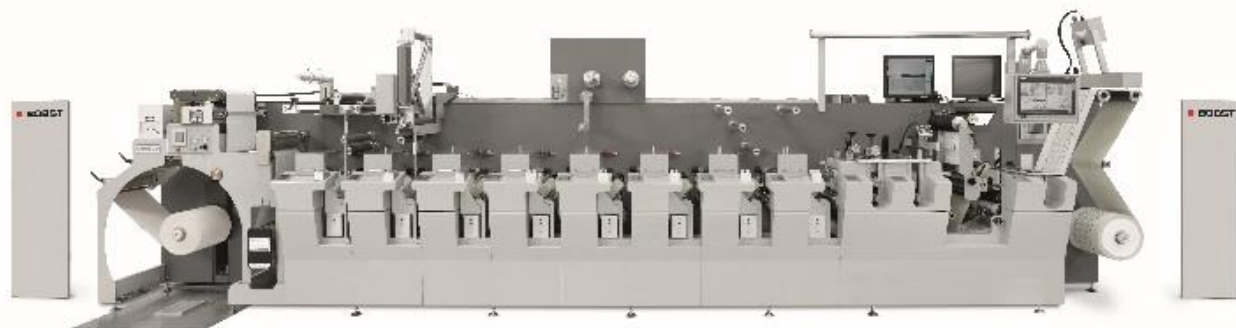


**AUTOMATIC
REWINDER**



BOBST FIRENZE MACHINE LINE

BOBST M3



M3 LINE

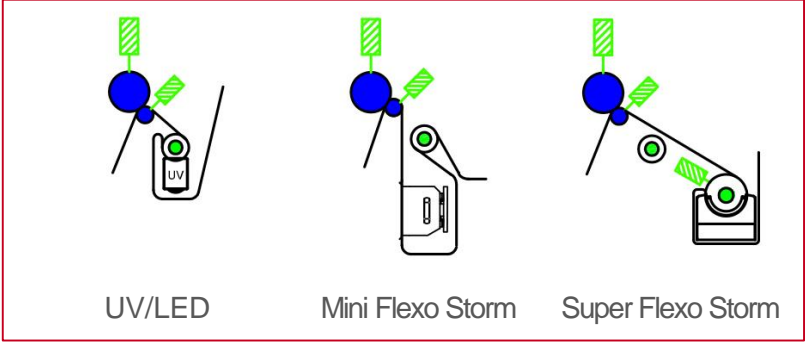
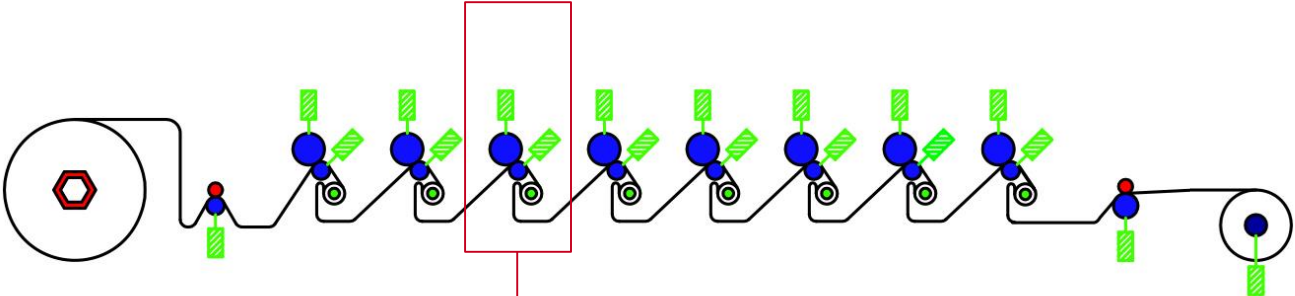
Total Flexibility for Labels and Packaging

Substrates	BOPP +20 Microns, laminated tubes, shrink sleeves, aufoil, Self Adhesive Stock (paper, PET, BOPP, PVC)
Press Speed Max (production speed depending on process, job, etc.)	180 m/min
Max Print Units	Unlimited
Min. - Max repeat Flexo	6,5" - 24"
Web Width (print width : less 10 mm)	370 mm 14,5" , 430 mm 17" , 530mm 21"
Multi-Process Printing	UV, LED, and Water-based inks; cold foil, silk screen, hot foil



BOBST FIRENZE MACHINE LINE

BOBST M3

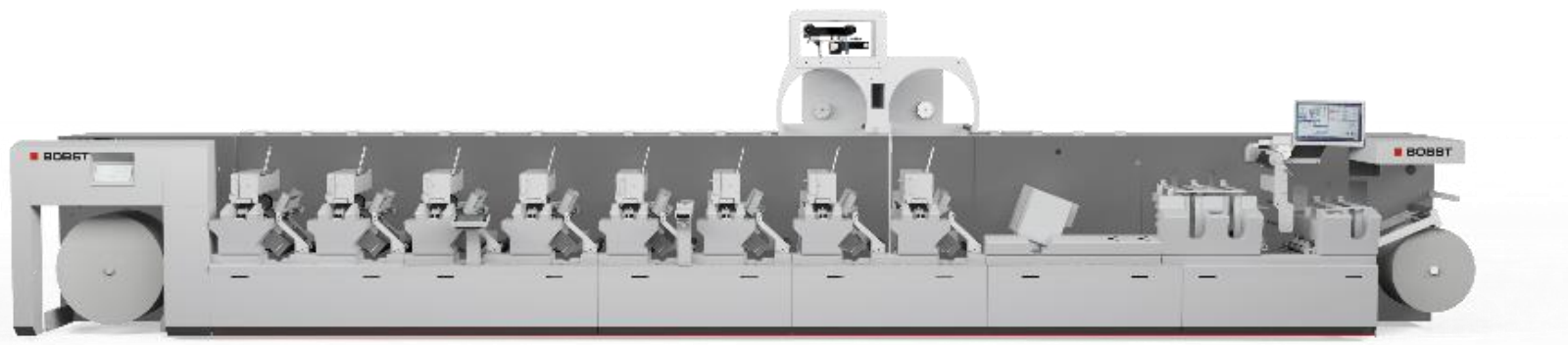


- Unwinder brake for multiple substrates
- Infeed and outfeed servo-assisted with independent load cells
- Impression and Plate cylinder servo-assisted for printing length and tension control
- Positive web transportation with specific impression cylinder sizing
- Driven Chilled drum
- Multiple web path solutions for UV-LED-Hot Air dryers



BOBST FIRENZE MACHINE LINE

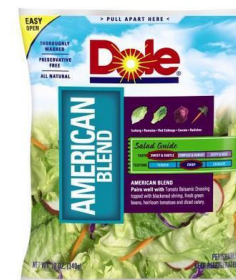
BOBST M4



M4 LINE

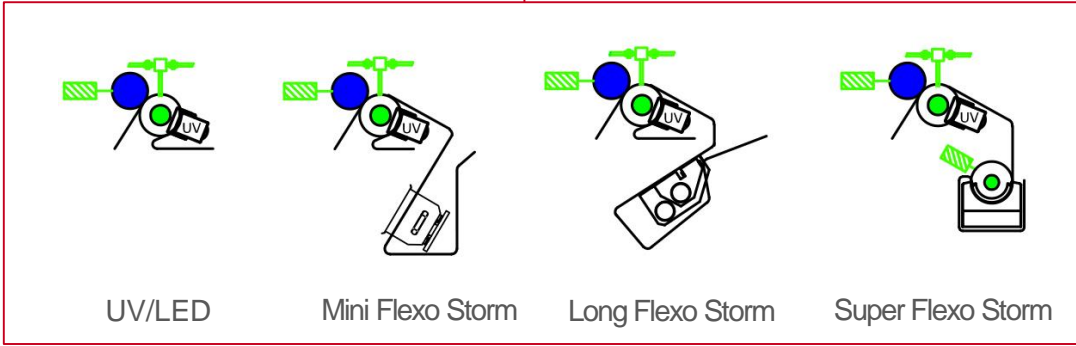
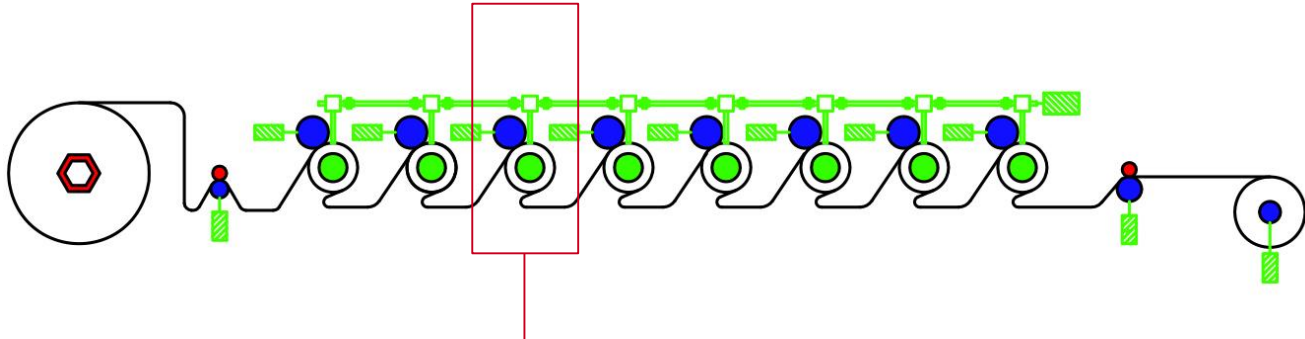
Tension control performance for flexible packaging.

Substrates	Unsupported Film from 20 μ BOPP, 25 μ shrink sleeve, 60 μ LLDPE, Aluminum Foil from 20 μ , Lamitube, Self Adhesive Stock (paper, PET, BOPP, PVC)
Press Speed Max (production speed depending on process, job, etc.)	200 m/min
Max Print Units	Unlimited
Min. - Max repeat Flexo	5,5" - 24"
Web Width (print width : less 10 mm)	370 mm 14,5" , 430 mm 17" , 530mm 21"
Multi-Process Printing	UV, LED, and Water-based inks; cold foil, silk screen, hot foil Gravure Solvent-based inks; Solventless lamination



BOBST FIRENZE MACHINE LINE

BOBST M4

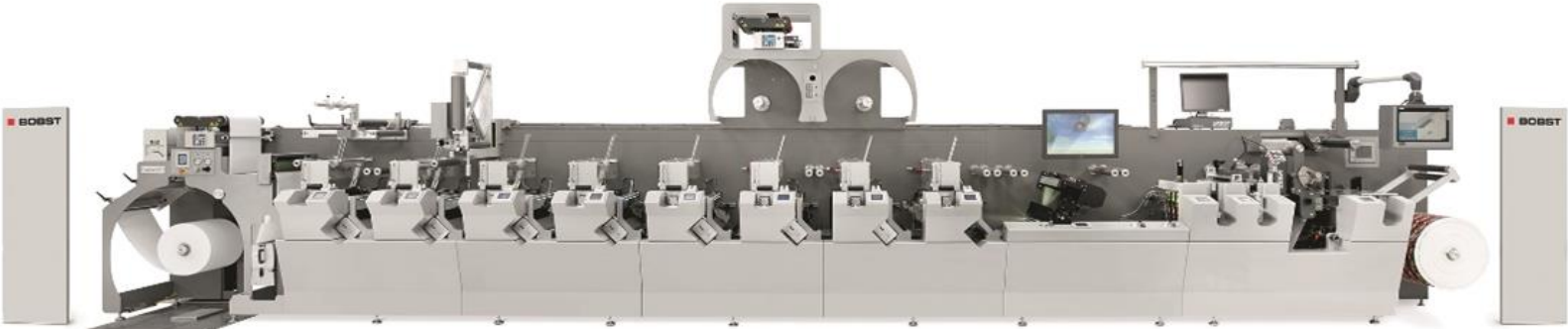


- Unwinder brake for multiple substrates
- Infeed and outfeed servo-assisted with independent load cells
- Impression line shaft and Plate cylinder servo-assisted for printing length and tension control
- Positive web transportation with specific impression cylinder sizing
- Oversized servo-driven Impression Chilled drum for tension and temperature control
- Multiple web path solutions for UV-LED-Hot Air dryers



BOBST FIRENZE MACHINE LINE

BOBST M5



M5 LINE

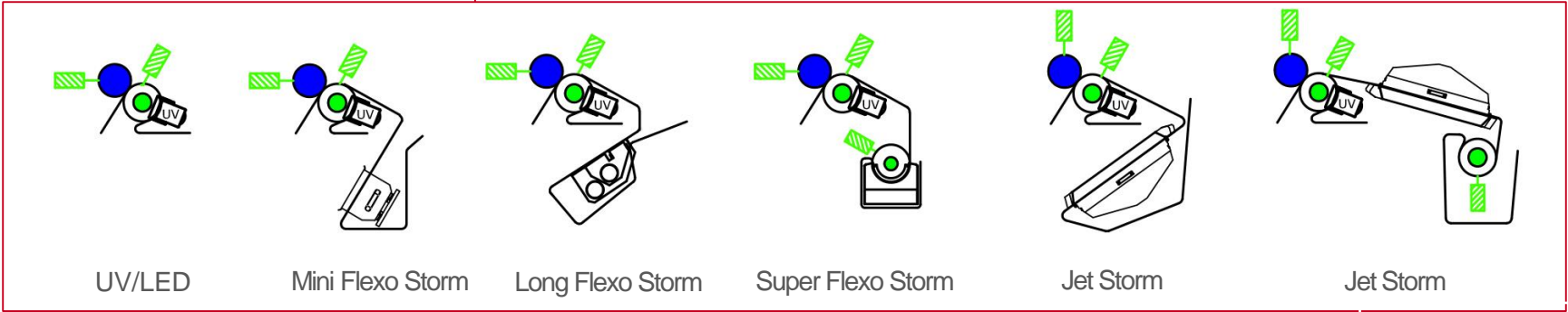
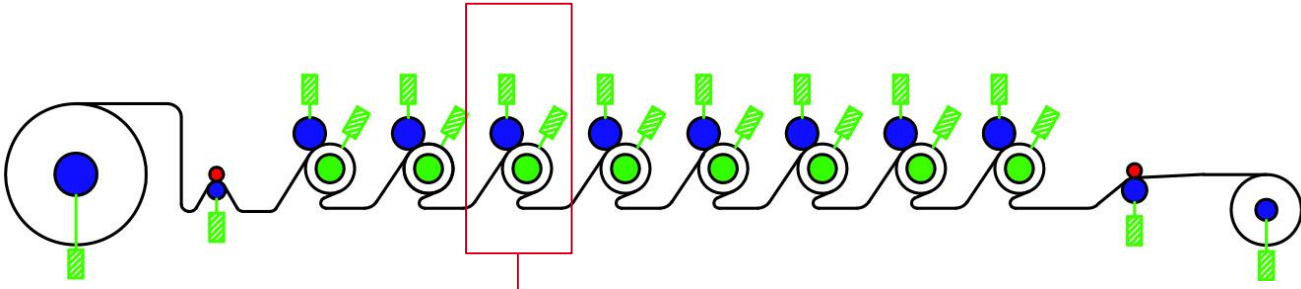
The Flexo in line press for unlimited substrates.

Substrates	Self Adhesive Stock (paper, PET, BOPP, PVC); Unsupported Film from 12µ PET, 15µ BOPP, 25µ shrink sleeve, 40µ LDPE, Aluminium Foil from 20µ, Lamitube,
Press Speed Max (production speed depending on process, job, etc.)	200 m/min
Max Print Units	Unlimited
Min. - Max repeat Flexo	5,5" - 24"
Web Width (print width : less 10 mm)	370 mm 14,5" , 430 mm 17" , 530mm 21"
Multi-Process Printing	UV, LED, and Water-based inks; cold foil, silk screen, hot foil Gravure Solvent-based inks; Solventless lamination






BOBST FIRENZE MACHINE LINE

BOBST M5

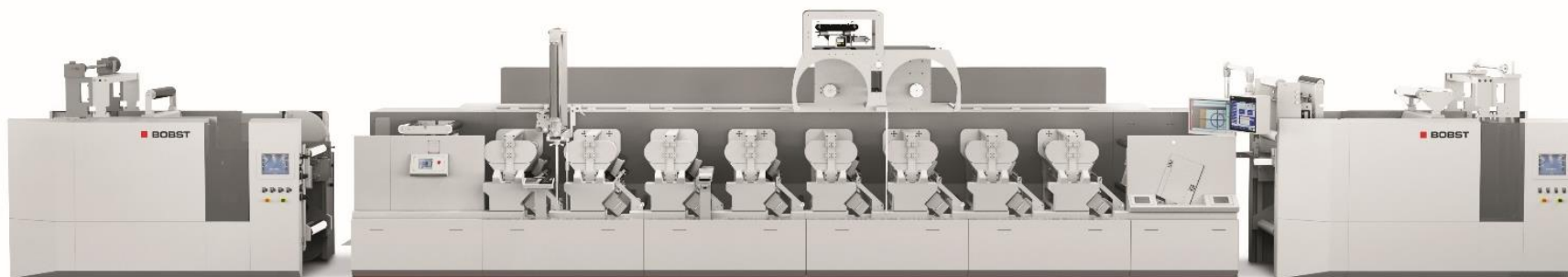


- Unwinder servo-driven for unlimited substrates and low tension control
- Infeed and outfeed servo-assisted with independant load cells
- Impression and Plate cylinder servo-assisted for printing length and tension control
- Positive web transportation with specific impression cylinder servo assistance
- Oversized servo-driven Impression Chilled drum for tension and temperature control
- Multiple web path solutions for UV-LED-Hot Air dryers

-  Infeed/Outfeed
-  Servo-driven
-  Driven Chilled drum

BOBST FIRENZE MACHINE LINE

BOBST M6



M6 LINE

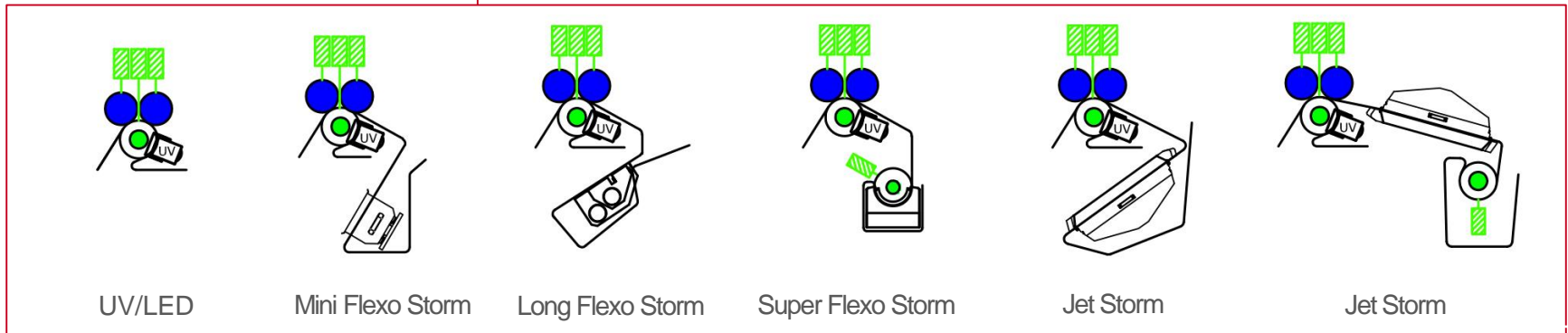
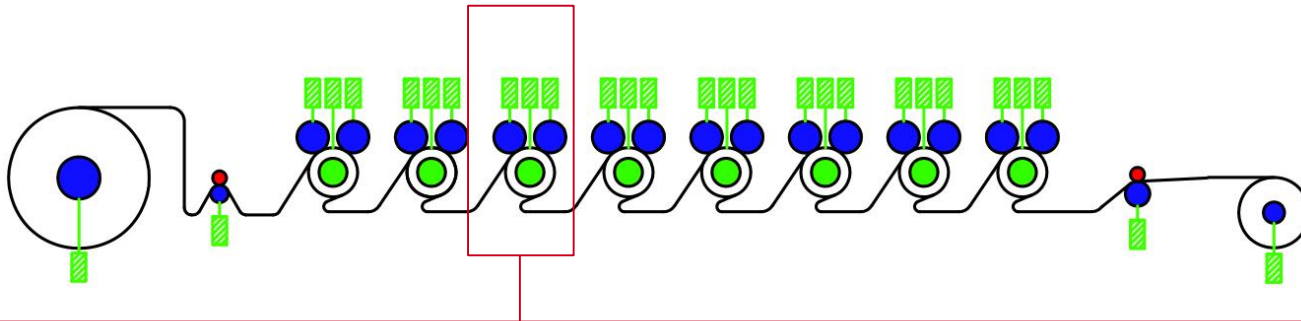
The mid web in line flexo press dedicated for packaging.

Substrates	Unsupported Film from 12 μ PET, 15 μ BOPP, 25 μ shrink sleeve, 40 μ LDPE, Aluminum Foil from 20 μ , Lamitube
Press Speed Max (production speed depending on process, job, etc.)	200 m/min
Max Print Units	Unlimited
Min. - Max repeat Flexo	10" - 24"
Web Width (print width : less 10 mm)	430 mm 17" , 530mm 21" , 670 mm 26"
Multi-Process Printing	UV, LED, and Water-based inks; Gravure Solvent/Water-based inks; Solventless lamination

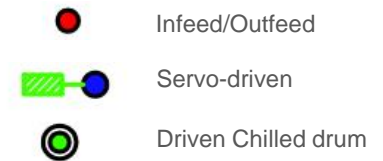


BOBST FIRENZE MACHINE LINE

BOBST M6



- Unwinder servo-driven for unlimited substrates and low tension control
- Infeed and outfeed servo-assisted with independant load cells
- Impression and Plate cylinder servo-assisted for printing length and tension control
- Servo-driven Anilox
- Positive web transportation with specific impression cylinder servo assistance
- Oversized servo-driven Impression Chilled drum for tension and temperature control
- Multiple web path solutions for UV-LED-Hot Air dryers

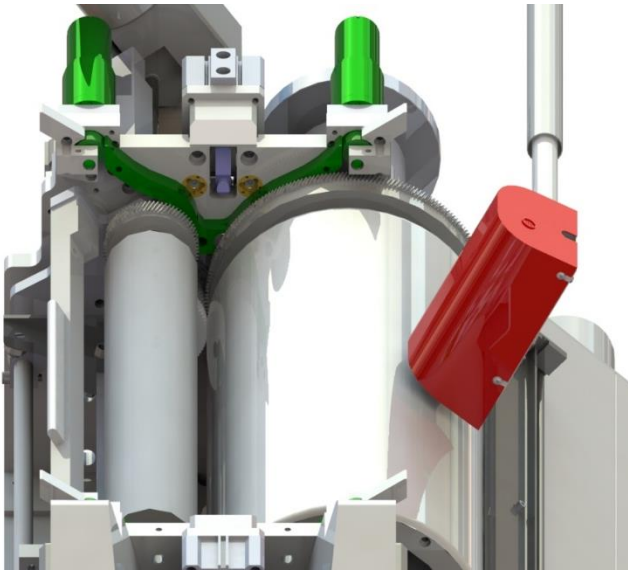




WHAT CAN BOBST OFFER BETTER THAN OTHERS?

DIGITAL AUTOMATION PROGRAM

Print Tutor™ & Print Tutor Plus™



AUTOMATIC REGISTER SETTING AND CONTROL

- 180 m/min max running speed
- 20 mt waste to be in register (press web path)
- One dedicated HD camera after each printing unit
- Directly looking on impression roller
- Transparent – White – Reflective substrates
- Single mark Position control referred to Master mark
- Single mark Pressure control based on shape dimension
- Multiple marks detection

BOBST Firenze marks



SENSOTEC marks



DIGITAL AUTOMATION PROGRAM

Excellence™

The **Excellence™** project takes the flexographic process to its ultimate efficiency and productivity to reach the **fastest change-over times** and the minimum waste ever produced in the Labels and Packaging industry.

The Excellence™ system allows operator to prepare the "new" job **ON THE PRESS**, while the press is printing the "old" job.

Exchange "**automatically**" all printing tools without manual operation.
Exchange "**on-the-fly**", without stopping the press, to avoid start and stop waste.

The **lowest waste** ever: less than 1 machine length (20 meters).

The **lowest press** downtime ever: the press is in full production, set up time is minimum (1 minute).

PREPARE

CLICK

RUN



“

**A revolution
in the Labels and
Packaging Industry!**

”

DIGITAL AUTOMATION PROGRAM

Excellence™



PREPARE - New job while the press is running.



CLICK - A button to start automatic job exchange.



RUN - With digital quality control and prepare next job.

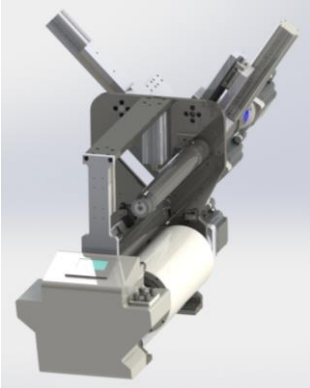
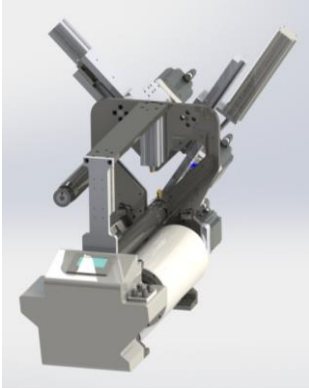
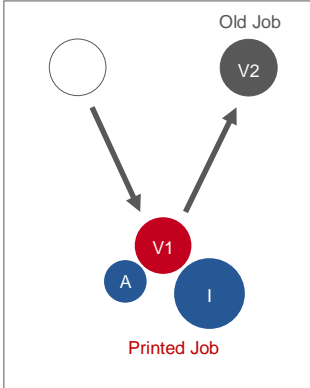
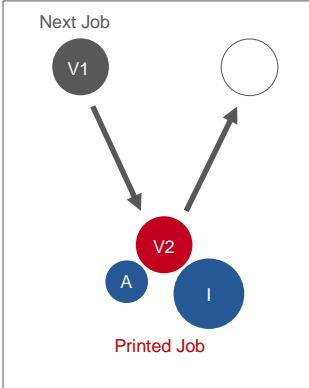
ExcelPrint™:

Automatic "swing" exchange of all print cylinders, from 6" to 16" repeats



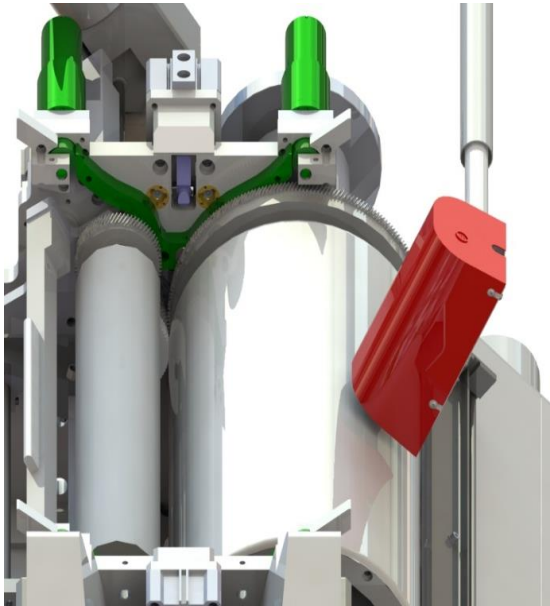
Sleeve V-Flower™:

Automatic "swing" exchange of all print sleeve cylinders, from 10" to 24" repeats.



DIGITAL AUTOMATION PROGRAM

Print Tutor™ & Print Tutor Plus™



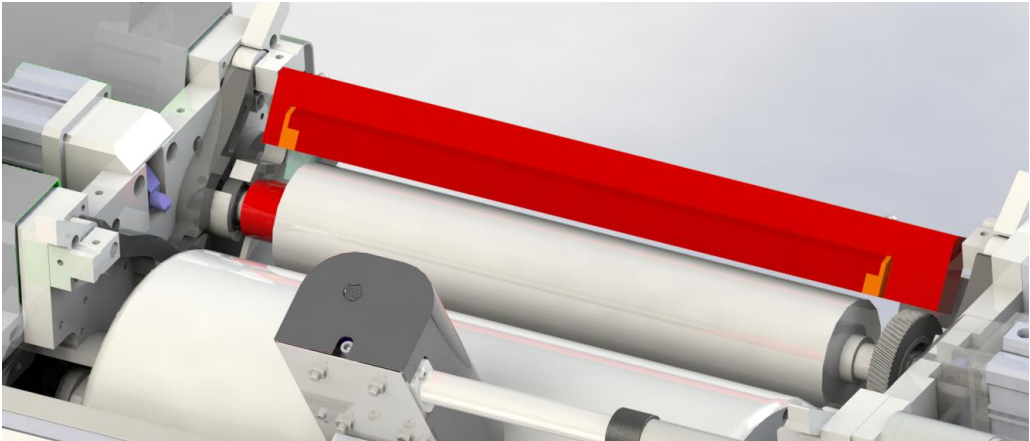
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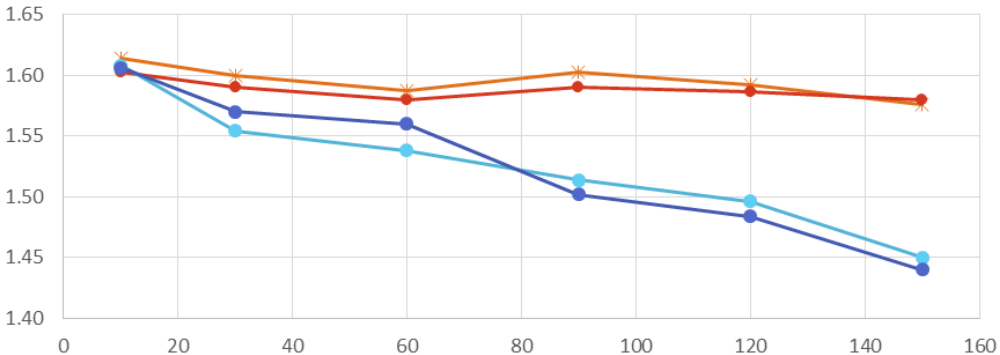
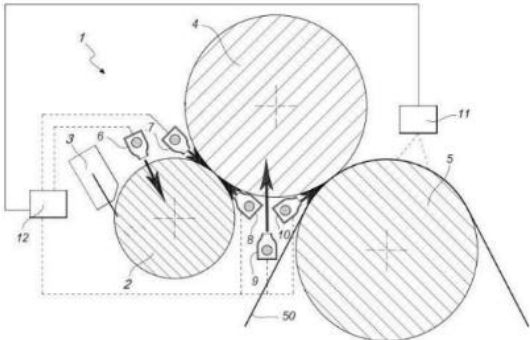
- Print Tutor Plus & AVT 100% inspection
- Printing pressure Auto-Setting (Presco)
- 35m waste for pressure AVT settings
- Closed loop for pressure adjustment
- 100% surface printing pressure control

DIGITAL AUTOMATION PROGRAM

Infinite Flower ΔE Color control



- IR Lamp to heat Ink and Anilox surface
- ΔE detection with 100% inspection system and Spectrophotometer
- Open loop adjustment (CL w.i.p.)
- Inline control and Drop-off reduction



DIGITAL AUTOMATION PROGRAM

Digital Flexo Excellence™ for REVO standards



DIGITAL FLEXO REVOLUTION



BRINGING THE
SEMPPLICITY OF
DIGITAL PRINTING TO
FLEXO!

REVO Digital Flexo is:

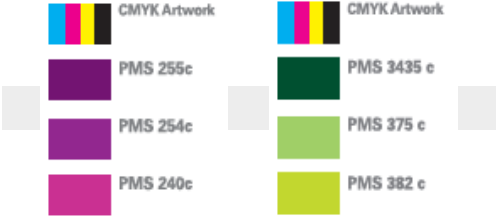
- A **Project Team** of leading companies in the printing industry
- Promoting a new **manufacturing method**
- To create **Digital Flexo** by "digitizing" the flexo process.

DIGITAL AUTOMATION PROGRAM

Digital Flexo Excellence™ for REVO standards

Conventional Flexo Vs REVO Digital Flexo

	Conventional	REVO
No. of Set Ups	2	1
No. of Colours	7	7
No. of Ink Mixes: (Pantones)	6	0
No. of Plates:	14	7
Total Make Ready Material Mtrs:	200	50
1st Job Make Ready Time:	1 hr 30 mins	30 mins
Run on Make Ready Time:	30 mins	0 min
Total Make Ready time:	2 hrs	30 mins

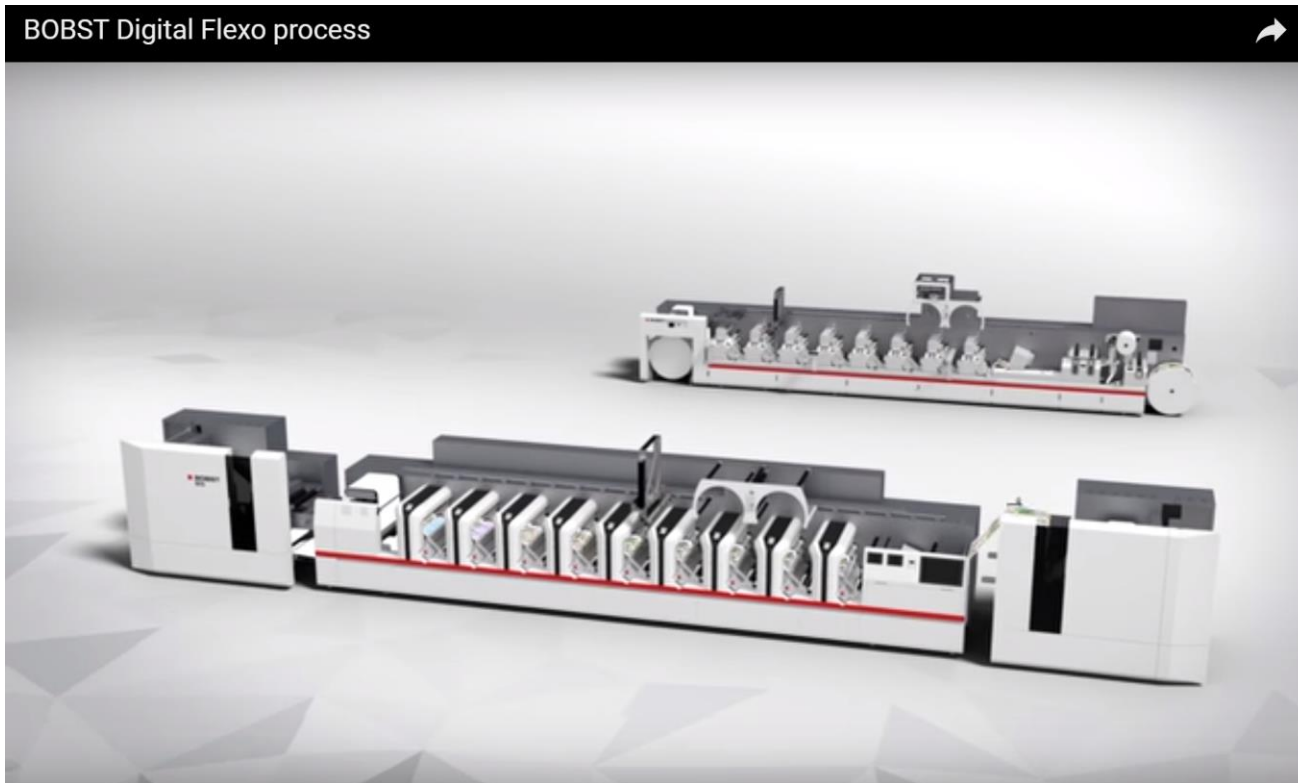


DIGITAL AUTOMATION PROGRAM

The BOBST Digital Automation Program – Video



<https://youtu.be/I9iJmTgPy-w>



THANK YOU FOR YOUR
ATTENTION!