

UNDERSTANDING FLEXOGRAPHIC PRINTING PROCESS



WEBTECH
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BY WEBTECH GROUP

ENGINEERING ~ EXCELLENCE ~ PERSONIFIED

A **leading Manufacturer** of Flexographic Printing Press

LABELTECH X1 SERIES

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WHAT IS FLEXOGRAPHIC PRINTING?



➤➤ Flexographic Printing is a form of printing process which utilizes a Flexible Photopolymer Relief Plate. Flexography, as the name suggests, involves wrapping a flexible printing plate around a rotary cylinder. As the cylinder spins, Inked plates with slightly raised images rotate around the cylinder at extremely high speeds transferring images onto the printing surface of packaging substrate. Because flexography impresses ink directly onto the printing surface in one step and uses quick-drying ink, it has become the go-to choice for the product packaging.

➤➤ Flexo uses quick-drying process for water-based inks, UV inks, Solvent Inks, and can accommodate printing on every packaging substrate from butcher paper, Kraft Paper, Chipboard to Linerboard, Chromo Art Self Adhesive, Non Adhesive, BOPP Film, PVC Shrink Sleeve All Types Aluminium Foil, Metallic Paper & Films, Thermal Paper, Maplitho Paper, Board Paper, and all types of other Flexible Substrate.

➤➤ This means the sky's the limit when it comes to unique branding options for packaging companies. There is an obvious substantial benefit in being able to print a logo or other marketing message on every packaging material used in your operation.

FLEXOGRAPHIC PRINTING PROCESS



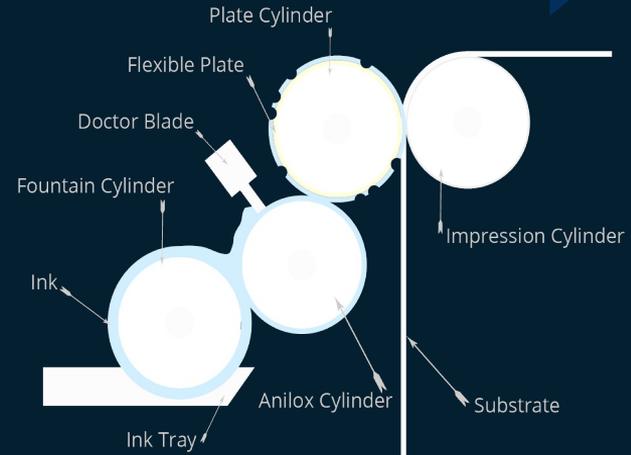
- To begin the print process itself, the printing plate is loaded into the printing press on Plate cylinders. As each colour needs a separate plate, it is essential that the plates are mounted correctly on the press, so that the images are transferred to the substrate accurately. Most print presses use specialist video assisted mounting machines to make sure every plate is aligned & positioned appropriately.
- When the run is due to begin, Ink is transferred from the ink tank through a fountain or metering roller, and then on to an anilox or ceramic roller. The anilox roller's surface is covered with thousands of tiny, cell-like impressions that act like tiny ink cups. This regulates the deposit of ink onto the printing plates and ensures an even coverage of Ink.
- To avoid ink flooding or patchiness, a doctor blade, or scraping tool is used to clear the anilox roller of excess ink. This prevents smudging when the plate is driven through the impression cylinder to make contact with the substrate. The result is a positive print image (from the negative print plate).
- When the printed image is transferred to the substrate, the Ink needs to dry as quickly as possible. This can be affected through fan powered Infra Red Dryers, Hot Air Dryers, or by ultraviolet (UV or LED) curing, depending on the Ink type used.

FLEXOGRAPHIC PRINTING PROCESS

➤➤ The final step on a flexographic printing press is the outfeed and rewind, where a substrate is rolled up again passing through the Die Cut Stations where the substrate can be cut, creased, stamped, embossed or perforated. The unwanted trim waste is rewinded on a separate top roller called the waste rewinder. Finally the substrate is rewinded back again on the outfeed Station.

ADVANTAGES OF FLEXOGRAPHIC PRINTING :

- Runs at extremely high speeds and is ideally suited for long printing runs.
- Prints on a wide variety of substrate materials.
- Short set-up times with a minimum of waste; guarantees high-quality output.
- Eliminates the need for additional work and cost: printing, varnishing, laminating and die cutting can be done in a single pass.
- Low cost of equipment and maintenance



KEY COMPONENTS OF FLEXO PRINTING PRESS



➤ FEED & UNWIND STATION : Control of the substrate is essential, feeding it into the press at a pre-defined tension , constantly even as the diameter of the roll changes . The unwind system should have automatic web guides, Electronic Brake and options for web cleaning and Corona treaters for synthetic substrates.

➤ CORONA TREATER : A corona treating system is designed to increase the surface energy of plastic films, foils and paper in order to allow improved wettability and adhesion of inks, coatings and adhesives. As a result, the materials treated will demonstrate improved printing and coating quality, and stronger lamination strength.

➤ DELAM-RELAM : It's a unit that allows the separation of adhesive paper from the silicone so that it's printed on the glue side and then re-cupled. .

➤ WEB CLEANER : Converters know a clean web is a productive web. By removing the contamination that is an inevitable by product of high-speed webs, effective web cleaning systems increase productivity by reducing maintenance downtime and minimizing waste caused by sub-quality product. There are two main reasons why a web attracts a variety of contamination, in the form of dust, dirt and assorted particles: the boundary layer created by any moving web and the generation of static charges. An effective web cleaning solution must be capable of tackling both.

KEY COMPONENTS OF FLEXO PRINTING PRESS



➤ **PRINTING STATION** : The print station needs to provide a smooth & stable drive to ensure the printed image is clean & vibration free. The basic Flexo systems includes an Ink storage tank , one or more fountain/metering rolls , doctor blade, Anilox Roller, Plate Cylinder & Impression Cylinder . As we saw above, The ink is picked up from the tank by the metering roll which wets the anilox Roll and then ink transferred to the plate cylinder which holds the printing plates, and then onto the impression cylinder which carries the substrate, the image is transferred from the plate to the substrate before repeating the continuous process.

➤ **DRYING STATION** : Each colour should be dry before the next is applied to the substrate. The drying section might include a combination of Infrared & Hot Air Drying or UV / LED curing or both systems. Better machines will ensure the drying intensity is matched to the press speed which can be variable with different applications.

➤ **DIE CUTTING & CONVERTING** : Each colour these are more commonly found on narrow web presses for production of labels, tickets & cartons. Products can be cut, creased, Foiled, Stamped, Embossed, perforated all in line in the same operation as printing. Therefore producing the finished product or label in roll or sheet form. Die cutting modules need to be built with heavy duty components for the high levels of pressure/force required to convert flexible webs up to 300gsm.

KEY COMPONENTS OF FLEXO PRINTING PRESS



➤ OUTFEED & REWIND : The output section maintains tension as the substrate leaves the printing press, by means of tension control sensors. Waste products are rewound out of the system and the final products are rewound into large rolls for later inspection.

➤ CHIILING UNIT & CHILLER ROLLERS : with a growing use of ever thinner synthetic and unsupported films there is a need to control the web temperature to ensure the substrate remains stable throughout the press and does not shrinks. This is even more critical where using UV drying system which inherently create a lot of heat . The addition of chill rollers provide that control.

➤ TURNBAR : Ideal for Flexo Printers that want to print on the web face then turn the web over for printing on the reverse side of the material. Many applications require flexographic converters to print on the front and backside on many web materials including paper, film and foil substrates.

➤ WEB VIDEO FLEXO PLATE MOUNTER : It is used for mounting Flexo Plates on plate cylinder with accuracy and great precision. A plate mounter is a machine used in the flexographic printing process in order to position printed plates on print cylinders. The plates can be mounted manually or automatically, working with interactive cameras to control the digital positioning of the Flexo Plates. The mounting speed per plate is very fast and great accuracy can be reached.

KEY COMPONENTS OF FLEXO PRINTING PRESS



➤ ONLINE WEB VIDEO INSPECTION CAMERA : Web Video inspection camera is provided for online inspection of the registration of the printing running at High Speed. Web Video Monitoring System examine your print easily, quickly, and efficiently, even at the highest web speeds. In the process, web inspection systems work with matrix cameras, strobe a certain area of the running web and display the resulting image on the monitor in the magnified form

➤ ULTRASONIC ANILOX CLEANING MACHINE : Designed exclusively for anilox roller for Flexo Printing Machines. Cleaning both ceramic and stainless steel anilox roller. Ultrasonic cleaning uses cavitation bubbles induced by high frequency pressure (sound) waves to agitate a liquid

➤ COLD FOILING AND LAMINATION : Unit for laminating and cold foil stamping by applying adhesive and affixing the printed film on the substrate. The unit can also be used for self-adhesive laminating or laminating by applying adhesive. The system allows the unit to be used in rotary or semi-rotary mode. It has two expandable shafts, one spools the stamping foil and the other rewinds the waste foil.

➤ LABEL SLITTER REWINDER MACHINE : After printing on a large roll of Labelstock, this machinery consolidates the labels into multiple narrower rolls. A roll of material is transported from an inline rewinder to an offline slitter rewinder. The roll is then unwound and slit into narrower webs.

SETTING A REALISTIC BUDGET



Since Flexographic Label Printing Press are reasonably complex and large machines, they inevitably involve a considerable investment. This is understandable when you consider all the variables that go into Flexo Printing.

So when planning an investment in new flexographic equipment, what sort of budget should you be working towards? This is an open question with lots of variability, so first we will look at factors that affect the market value of Flexographic Label Presses.

- NUMBER OF COLORS : The more colour options, the more expensive the press will be.
- WEB WIDTH : To print wider labels, a larger impression drum is required, thus adding to the unit cost.
- TYPE OF DRIVE SYSTEM : The more technologically advanced the print drive system, the more it will cost. Your options relate the level of technology & components are involved in the drive. A non-servo drive will operate manually on an open loop system with some simple automated components, whereas a full servo drive is a closed-loop system with more extensive technology options. It will monitor feedback signals from the press and make automatic adjustments to maintain tension, register, and print speed.

SETTING A REALISTIC BUDGET



➤ TYPE OF DRYING SYSTEM : As discussed earlier, print can be dried through high-pressured air , Infrared or ultraviolet curing. Some presses also use LEDs to fix the ink to the substrate. LED & UV systems are more expensive than IR and fan powered systems, although LED may have lower energy requirements and thus cost less to run.

➤ OPTIONAL EQUIPMENTS : Additional equipments, such as Web Cleaners, Corona Treaters, Video inspection systems , conveyor systems, will increase the amount of money you need to spend on the press. Have a clear idea of essential features you need. Don't overload your specification with options you may never use.

➤ LABOR REQUIREMENT : One main trained Operator and One Helper

Every addition to the Label Press will increase your investment budget therefore it becomes very important to understand what exactly you need from the label press and what market segment you want to target - Pharma Industry , Liquor Industry, FMCG industry etc.

WHY TO CHOOSE FLEXO PRINTING PRESS?



In addition to speed and lower cost in producing medium to high-volume print runs, there are additional benefits to Flexo Printing that could be the deciding factor in selecting the right method for your business.

HERE ARE FEW MAIN BENEFITS OF CHOOSING FLEXO PRINTING PRESS :

- »» Lower ink costs per square meter because the inks you need for digital printing are more expensive
- »» Increased flexibility and durability with a range of colors and substrates
- »» It allows you to produce larger quantities of labels in a shorter period
- »» You can enable and automate more applications like cold foil, laminating glue and varnish applications.
- »» Inline finishing is included in a Flexo Press
- »» Flexographic printing can be applied to a wide range of industries, including textile printing, packaging printing, label printing and more. The versatility of the machines means that presses can be adapted to accommodate different types of order, giving print businesses the ability to diversify their market appeal and remain competitive.
- »» Flexographic printers can adapt themselves to print on a very wide range of substrates, including paper, board, foil, plastic film, cellophane, recycled substrates and a variety of textiles.

WHY TO CHOOSE WEBTECH?



Investing in a high quality Flexographic Press, with the right consumables and strong technical support, is the best way of guaranteeing on-time production and consistent quality across your print runs.

At WEBTECH, we believe we have the right combination of expertise, professionalism and creativity to provide you with the flexographic solutions you need. With every build we combine cutting-edge design, high engineering standards and after sales support to help you get the best return from your investment.

These are what we feel are the main strengths of our business model that set us apart from our competitors :

1) ENGINEERING AND BUILD QUALITY : All our printing presses are designed, engineered and assembled at our facility using the latest State of the Art Facility. We don't outsource any part of the process. Our presses have a professional reputation for extreme reliability while also being versatile and cost-effective. As technologies change, we will be able to update your press with upgraded modules, so you can maintain your competitive edge. All our designs are future proof in this way, to guard against obsolescence and give you greater long-term value for money. Every press comes with full build quality assurance and product warranty.

WHY TO CHOOSE WEBTECH?



2) RELIABLE COMPONENTS : We use third-party suppliers to provide electrical components, such as servo drives, control systems, gearboxes and UV systems that are best and specialised in their field. We are completely transparent in this and only ever use reputable UK and European supply partners.

3) INNOVATIVE R&D DEPARTMENT : A print business that fails to innovate rapidly falls behind its competitors. We are therefore always working to give our customers a technological edge by innovating new products and components to improve the performance of our printing presses. We never simply replicate what other companies are doing, but instead try to lead the field ourselves by approaching problems in a new way.

4) EXCELLENT TECHNICAL AND AFTER-SALES SUPPORT : We pride ourselves on our excellent technical support and after sales customer service. Wherever in the world you are based, we can offer you fast, expert support through our global network of representatives and distributors. Our rapid response service gives you access to spare parts and engineering services whenever you need them. Our support begins even before installation, with our comprehensive training package. We want to ensure that all your team are completely confident in operating your new press so you can start running at full efficiency straight away. We therefore offer full training as an inclusive service. We are always available to answer your questions and field your calls throughout the process.



3000+ Satisfied Clients



25+ Years of Experience



400+ Employees

OUR VALUES, MISSION & VISION

OUR VALUES

- > **EXCELLENT SERVICE** : We anticipate, listen & respond to customer needs & provide a safe, effective & caring service.
- > **MUTUAL RESPECT** : We work internally & externally in a collaborative environment based on trust, joint commitment & respect.
- > **VALUE CREATION** : We create profit & community goodwill through growth, effective execution, continuous improvement & innovation.
- > **ENTERPRISING SPIRIT** : We question the status quo, proactively seek improvement & take ownership to overcome obstacles.

OUR VISION

To take our products reach across every corner of the world. Sustain WEBTECH'S position as one of India's most valuable corporation through world class performance, creating value for the Indian economy and Company's stakeholders.

OUR MISSION : WE WILL

- > Be responsive to customer needs, delivering optimum solutions & value-added services.
- > Ensure sustainable growth & professional expertise using state of art technology, process driven approaches & eco-friendly solutions.
- > Foster a culture of mutual trust, respect, teamwork, continuous, learning, innovation & employee empowerment to provide a growth oriented work place.
- > Adhere to fair, transparent & ethical practices in interactions with all stakeholders.
- > Remain flexible & agile, continuously adapting to the changing environment.

THANKS!



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