

**SOMANY INSTITUTE OF
TECHNOLOGY AND
MANAGEMENT,
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**PRINTING
TECHNOLOGY
BASIC OF PRINTING
PROCESSES**

UNIT-3

FLEXOGRAPHY TREND AND SCOPE.

Flexographic printing is always improving, but in 2020, a few things take the forefront:

1. Sustainable practices are a must
2. Expanding the type of substrates used
3. Looking for more skilled workers
4. Going digital

Sustainability

As more and more people start to realize what they purchase has an impact on the environment, they become more conscious of what they consume.

It then falls on companies to adapt and become more sustainable, not just to please consumers, but to protect our futures.

Flexo printing is no different. Printing companies are starting to focus more on the sustainability of their flexible packaging, using things like

- Biodegradable substrates
- Recycled materials
- Water-based inks
- Eco-friendly coatings and adhesives
- Elastomer sleeves

Among all the things happening in 2020, it's important to not lose sight of the future, and that future depends on the sustainability of the present.

Substrates Galore

This trend is a bit like the sustainability one, where there is an emphasis on innovating and improving the types of products that need flexible packaging printing.

Companies are already printing on a number of different substrates, including:

- Corrugated
- Paper
- Foil
- Plastic films

But the most important part of innovation is design. **Designing new types of substrates for flexible packaging printing greatly expands the possibilities of flexo.** Using

experimental materials like glass and fabric, or even designing new materials with biodegradable or recycled materials, drives the flexo printing industry to the limits.

Skilled Labor

As the older generation of flexo printing experts begin to retire, it is becoming increasingly difficult to find skilled operators for flexible printing positions.

Thankfully, automation has started to fill the skill gap, with more complex systems picking up the slack. However, there is still a need for flexo printing experts in the pressrooms and on the shop floor to assess quality and troubleshoot issues.

This being said, **make sure you supplement your workforce with rising automation practices**, but also carve out positions where humans are irreplaceable. It will improve product quality and increase innovation.

Digital Flexo Printing

Technology's improving at a rapid pace, and the digital world is constantly growing. Digital printing and flexographic printing are two of the most prominent printing methods for flexible packaging printing, and they've come together for a better, more efficient process.

By incorporating digital printing methods into flexo printing, companies can queue multiple jobs at the same time, accurately measure and disperse inks, as well as supplement analog printing methods with fully digital printing methods.

Upgrade your flexo printing presses to include digital printing practices for increased efficiency and speed!

The Future is Here!

Seeing into the future is impossible, but it pays to follow trends and invest when possible. There's always the possibility that circumstances will cause trends to reverse or simply fade away, but experience says that the ones outlined here will probably stand the test of time—at least a year's time.

By taking the time to consider all these tips and trends, flexo printers can stay ahead of the game while taking the necessary steps to improve their business.

GRAVURE PRINTING AND FUTURE

Gravure printing is characterized by excellent print quality and high printing speed. Its further advantages are that it involves a simple printing process, accurate ink use, and the flexibility of printing machine structures. Gravure printing, due to several technological innovations, now belongs to innovative technologies. The market of packaging materials is the largest segment of gravure printing, and a further increase is forecast. In this chapter, the bases of gravure printing process (ink transfer, drying, gravure cylinder, doctor blade, impression cylinder, characteristics of the prints) and the characteristics of gravure printing inks are presented. The up-to-date methods of gravure cylinder production and the characteristics of the structure of gravure printing machines are touched on, and finally the areas of the development of gravure printing are dealt with.

Gravure printing is a widely used processing method often used to print large volumes of magazines and catalogues. Opposed to flexoprinting, the ink in gravure printing is transferred from carved [micro cavities](#) and not from a relief. These cavities, embedded in the printing cylinder, form the printing pattern. A second softer impression cylinder pushes the web against the primary printing cylinder and the ink is transferred from the cavities to the web through matching surface energies of the ink and substrate. The printing cylinder is partially immersed in an ink bath and similar to the anilox in flexoprinting a doctor blade is used to remove any excess ink from the printing cylinder leaving ink only in the cavities (operating principle is shown in Figure 7.8). As for flexoprinting it is also possible to use a chambered doctor blade. Gravure printing is highly dependent of ink viscosity, substrate speeds as well as the pressure applied by the impression roller and great care is therefore required in the choosing of processing conditions and ink formulation. However, the process is suitable for low-viscosity ink and high printing rates up to 15 m/s can be achieved.

Extremely well placed in all gravure applications

Flexible packaging – versatile and dynamic

Gravure's largest and most diverse market segment has to meet exceptionally strict quality criteria for conveying the brand and product image, at the same time optimum organization and maximum efficiency are also important given the time critical production requirements. The largely automated Heliograph solutions ensure a high cylinder throughput combined with maximum quality and process stability. The high speeds of electromechanical engraving machines and the perfectly coordinated processes eliminate bottlenecks – the key criterion for our customers!

Tobacco – the supreme challenge in packaging printing

The tobacco industry expects its packaging to convey a strong message and be instantly recognizable, with a great deal of textured finishing and complete sensory neutrality. This is important, because the tiniest design details and the packaging's overall sense of value carry key brand messages. Heliograph solutions leave nothing to be desired in this respect. High-resolution line engraving at the very limits of what is feasible, top-quality linework, and large volumes with directly lasered or etched gravure and embossing cylinders in full 3D have all further enhanced the effectiveness and appeal of such packaging. The more sophisticated the application, the greater the benefit customers derive from the Heliograph companies' innovative strength.

Decoration – the perfect look with the narrowest of tolerances

Decorative printing was the first market segment in the printing industry to apply extremely stringent quality requirements in terms of color reproduction. This is because the narrowest of tolerances are vital, if print runs of wood grain reproduction, wallpaper, and floor coverings are to be repeated at will. When it comes to tissue and gift wrap paper, the main focus with cylinders both large and small is on delivering the very high ink transfer volumes that can only be achieved with large engraving depths and must work for all kinds of ink systems. Heliograph offers the full range of electromechanical engraving and laser processes for this purpose, including mask etching technology, in the required high precision.

Security features – sophisticated prints and embossings

Both high-resolution gravure, often in combination with line engraving and microtext, and the screenless intaglio process with high-viscosity inks that imitates a hand engraving support a wide range of counterfeit-proof features. This makes gravure one of the preferred printing technologies for securities, stamps, and banknotes with their fine hatching and guilloché. The universal Digilas solution of our laser specialist Schepers makes this company an indispensable partner for such applications.

Publication printing – source of many innovations

Heliograph rounds off its portfolio with solutions geared to the large cylinder widths and critical throughput times encountered in publication printing. Publication gravure was once the birth place of modern rotogravure, and this produced numerous innovations that have now become a vital part of packaging and decorative printing.

Popular Screen Printing Applications

GLASS & CERAMIC

Today, screen printing continues to play a significant role in the production of glass & ceramic products for both industrial and consumer applications. Screen printing is unique because the process can overcome significant challenges faced by glass decorators.

ELECTRONICS PRINTING

The Printed Electronics industry is currently witnessing exponential growth as the demand for tech devices escalates—and screen printing continues to be a lean, efficient and reliable production option due to improved printing techniques, equipment and materials

TEXTILE PRINTING

Chromaline knows that today's Textile printers are looking for stencil systems that go beyond ink resistance and on-press durability—screen making and screen turn-around are just as important. Textile printers need emulsion solutions that can lower costs, increase efficiency, and help deliver a greater volume of high quality products.

GRAPHICS PRINTING

With the ability to screen print almost every design or text onto any substrate

or 3-dimensional object, the capabilities for today's graphic printer appear to be limitless—but not without challenges. Emulsion selection and performance is a critical component for the success of every graphic application.

ALPHA STENCILS

In response to exponential growth in the Printed Electronics Industry, Chromaline has developed a suite of stencil and substrate materials for advancing screen printing capabilities for micro-circuit applications. Working together, Chromaline's Printed Electronics materials provide comprehensive solutions for the growing number of conductive ink technologies and diverse PE applications