CUTTING PLOTTERS FOR PROTOTYPES

Matteo Muto of Valiani, explains how a prototype can save time and money for large printing and packaging companies

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Packaging for shopping and cosmetics

In today's economy, realising someone else's vision, in a timely manner, is an increasingly essential part of business. A flatbed cutting plotter can produce a mock-up or prototype quickly. In addition, there is no need for a minimum order to take advantage of this process. The flatbed cutting machine is the prototype packaging solution for boxes, bags, wrappers, labels, folders and POP (Point of Purchase) displays.

PROTOTYPE NECESSITY

A prototype is at the very core of long runs in every production process. In packaging, a good prototype must precisely demonstrate the design and structure of a box. No matter the final quantity, a prototype is always necessary. Only when the prototype is created and approved can the sample be sent to the die maker to be manufactured and delivered.

PROTOTYPE PRECISION

The prototype of a box is of utmost importance because it makes it possible to see the 3-dimensional nature of the structure. A prototype is often referred to as a mock-up. Both words accurately describe the fact that there are between one and five pieces to a single job. Even though the quantity is so small, the precision, quality and attention-to-detail cannot be underestimated. The mock-up must be perfect in every way because, once it has been approved, it will go on to be produced on a vast scale with a die-cutting machine.

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A company committed to the production of mock-ups will instantly experience two major advantages – the elimination of start-up and outsourcing costs. By outsourcing less, the printer can streamline its production processes and gain greater control over quality and costs. In addition, producing prototypes in-house enables control of time and workflow. This enables the production of any customer order without minimum order quantity (MOQ) restraints, meaning that start-up costs are reduced and large print runs are not necessary.

CUTTING PLOTTER SOLUTION

Flatbed cutting plotters are often the machinery used to create these prototypes. The plotter's main function is to allow the operator to cut several substrates without

Valiani packaging mock-up software

A circular box for biscuits

the use of a traditional die cutter. Since they are normally available in several formats, the choice of the machine size will go hand in hand with the size of the material to be processed. If printed, the capacity and maximum print size that can be achieved needs to be considered. Without an in-house plotter, a print and/or packaging company will often have to rely on an external supplier and adapt to pre-made cutting dies. However, with a flatbed plotter, original designs and product prototypes can be achieved in house.

There are three essential stages in the production of a well-made prototype – conception, design and realisation. The following recommendations may be enlightening in order to achieve a successful box prototype.

CONCEPTION AND DESIGN

This initial phase is often preceded by a hand-drawn image by, for example, graphic designers, architects and engineers. The second – and the most intricate step – is the design.

Secondly, specific software for packaging creation can be helpful for this stage. Supportive materials might include folding

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carton, corrugated cardboard and grey rigid board. With CAD, new shapes and ideas can be designed. In addition, specific programmes can be used to resize pre-existing templates by simply changing parameters such as height, width and depth. Focusing on the visual aspect of the design process, these programmes offer intuitive 3D prototyping and realistic visualisation of the different

An example of high-end luxury packaging

types of material. This integration allows graphic and CAD software to complement each other by increasing productivity without requiring any effort.

REALISATION

Finally, we arrive at the most exciting and intriguing phase – the cutting process. These days the widespread rise of small digital-cutting machines is helping graphic designers of boxes to free their imaginations. Cutting-machine devices enable designers to implement their projects by cutting and creasing cardboard and paper of any type.

WHICH MATERIALS DO I NEED TO CUT TO MAKE A BOX MOCK-UP?

Most of the time, box prototypes are made of cardboard. The family of cardboards is incredibly broad. Folding carton is commonly used in the cosmetics and pharmaceutical field. This material is generally printed on a digital or offset printer before being cut. Corrugated cardboard is very often used in the food and beverage industry, while some designers resort to grey chipboard to make up their luxury boxes. These boxes are in fact characterised by a particular 45-degree bevel cut which can be made only by adopting

A box for a mobile phone

a cutting machine. These boxes are then wrapped and coated with light paper before being customised.

CONCLUSION

Small runs of different batches are highly sought after and bring profit due to timing and customisation. With a cutting machine it is possible to conceive a box prototype very rapidly. These digital systems allow cutting and creasing of any materials, so that a manufactured item can be produced in a very short time. Customisation cannot be achieved using the die-cutting machinery. Small cutting machines used for packaging prototypes and mock-ups are compact, versatile, long-lasting with an affordable price. ■

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