

GRAVURE vs. PRECISION ROLL

By Ken Secker, Sales Manager

Almost on a daily basis, the Dixon Sales and Technical Team are presented with requests for machinery quotations from our most valuable asset - the Customer.

The Customer has a requirement to produce a product, often undisclosed, and we at Dixon are challenged to provide the equipment with which the Customer can apply a specific coating layer onto his substrate material. Not an easy task when you consider that often, the Customers' requirements are state of the art and thus the actual process has not entirely been achieved before.

This is where the experience and expertise of Dixon's Technical Department comes in. They must decide the most cost effective solution for achieving the Customers' requirement.

One of Dixon's greatest assets is their ability to produce coating heads to apply both light and heavy coatings with very high levels of accuracy. Quite often, the choice of application system falls to either Gravure or Reverse Roll coating.

Both systems are categorised as pre-metered application systems, i.e. they deliver the exact coating mix weight without the need for removing surplus mix.

The correct coat weight is achieved differently by each system. Gravure works on the principle of an etched pick-up roller where a cellular pattern carries the coating mix to the substrate. The depth and size of the cells determines the coat weight. Various forms of gravure exist: direct, reverse or offset

applications. The choice is dependent upon the coating mix and end product required.

Gravure is normally a simple system to use, but has some limitations when the required coating is high in solids and

weight. Gravure cells can become blocked, which affects the coat weight. Good housekeeping is necessary to prevent this from happening.

This is often where a Reverse Roll method takes over, i.e. for applications where high solids and coat weights are required. The principle of this system is a very rigid coating head, with very accurate adjustments and roll T.I.R. (Total Indicated Run-out), often less than 1 micron.

Dixon specialise in this type of coating head, with extensive experience of applying a very accurate pre-metered mix on to the substrate. Limitations of the Reverse Roll system include complexity, cost and the requirement for skilled operatives.

The end products resulting from these two systems are often the same and include: barrier applications for films and paper, magnetic films, films and papers for electronic and thermal products, light sensitive films and

papers, adhesive products.

The decision as to which system is preferred is dependent upon the Customers' requirement for: coating mix formulations, coat weight tolerance, running speeds and overall budgetary constraints. The decision is made easier with the guidance of the Dixon Technical Team!

System	Process
Direct Gravure	
Reverse Gravure	
Offset Gravure	
3 Roll Reverse	
2 Roll Viscous	
3 Roll Viscous	
5 Roll	