

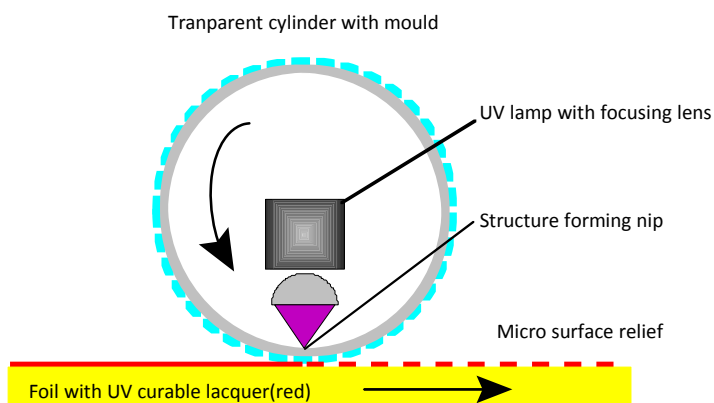
UV assisted rotational moulding of microstructures for high-volume production of diffractive optical elements on foil

Lars R. Lindvold and Jan Stensborg
Stensborg A/S
Frederiksborgvej 399, Niels Bohr
4000 Roskilde
Denmark

Abstract

We present the first commercially available system for in-line printing of holographic microstructures as a part of a conventional 4-colour printing machine for e.g. label printing.

The talk will focus on the challenges of transferring microstructures, by means of rotational micro-moulding and UV curable lacquers in a process known as Holoprint™ (see figure below), at a speed of 60 m/min with high fidelity.



UV light is focused by a cylinder lens in the nip. UV curable lacquer is applied to a substrate material and brought into contact with a transparent mould wound around a cylinder. UV lacquer is cured in the line of focus, the nip, and the microsurface relief is replicated onto the substrate



Detail of mould prior to mounting on transparent cylinder

The possible use of this technology as a generalised platform in industrial roll-to-roll (R2R) fabrication of microstructures will also be discussed.