



LEYBOLD OPTICS

Colour Effects, Surface Protection and - Design by Vacuum Deposition

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Abstract:

A variety of design effects and surface engineering can be achieved by the use of advanced layer stack design and modern vacuum coating equipment. The presentation gives an overview over the variety of modern coating techniques and focuses on three main applications:

- Vacuum deposition of coloured layers offers interesting new design possibilities and cost advantages compared to yield sensitive lacquering processes. The paper introduces examples of coloured layer stacks manufactured by reactive sputtering of metal nitrides and carbides. A wide range of colours was achieved ranging from bright blue to gold or a grey scale from bright metallic to "gun barrel". 3D-capabilities, RF-transparent variants and limitations of the processes are addressed by application on real parts.
- A new method of PECVD is introduced, capable of protecting the metalized part against light abrasion and allowing a dry cleaning of fingerprints from stained parts. This feature offers significant scrap reduction during manufacturing of modern car lamps, which require an increasing amount of handling and complex assembly.
- The application of super hydrophobic coatings provides surfaces that are less susceptible to contamination and are easier to clean if stained heavily. This application is particularly interesting for parts which are handled frequently but still need to maintain a clean appearance.