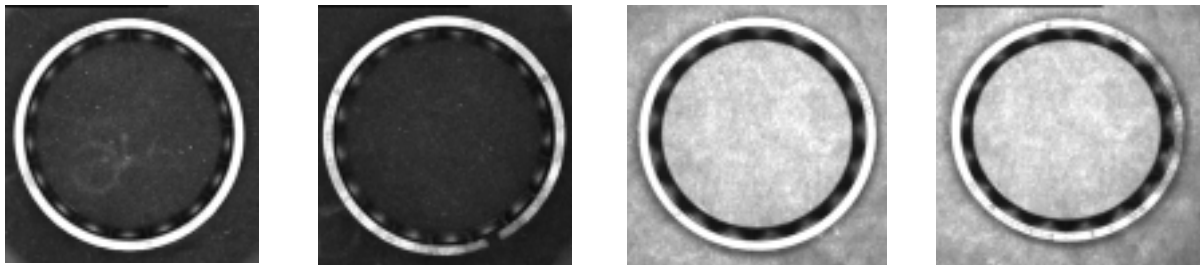


APPLICATION NOTE: 212

Application: Inspection of injection molded parts

Problems:

- 1) Underfilling
- 2) Separation of part from background



Solution:

The most common problem in injection molding is underfilling of the mold. Underfilling causes a discontinuity or break in the molded piece. The second is more difficult to find and occurs when the mold is filled enough to prevent discontinuities, but the part is damaged when its removed from the mold. The result is a rough finish on the edge of the part and possible discontinuities of the inner diameter.

To solve this problem, a simple ringlight is not sufficient. The first two images show that defects can be found in the top surface of the part, but low contrast fails to show other defects.

The structure of the light must be low angle, highly uniform, and symmetric about the camera axis. Our DRI solution is designed specifically for these types of applications. The DRI solution ensures the proper structure for reliable surface defect detection, independent of the defect orientation. The resultant three level images show that all defects can be identified. The DRI lighting system is powered by a 3900 Smart-Lite which provides the output stability necessary to ensure that the algorithm remains robust and reliable. Together these lighting performance factors give the system a robust front end that guarantees long term system reliability in a production environment.