

Material mixing and dispensing prove key for LED production quality

British LED manufacturer [Plessey Semiconductors](#) have successfully made the transition from the manufacturing development phase (where manual methods of material preparation and application often suffice) to full production by employing some of our automated mixing and dispensing technologies.

Carl Withers, Plessey's Assembly Development Team Leader, explained:

We develop leading edge LED technologies, based on Plessey's MaGIC platform, for a wide range of applications – from standard consumer products to more demanding, application specific and chip scale packages. The LEDs emit a blue light and through a silicone and phosphor mixture, convert this blue emission to white light. The constant and accurate mixing of this mixture is key to target specific colour temperature and rendering.

David Peat, one of our Product Specialists, worked with Plessey to recommend mixing and dispensing equipment for the LED phosphors. The [Thinky ARV-310 LED](#) benchtop mixer is a non-contact planetary mixer which mixes, dispenses and degasses according to programmable mixing profiles. It includes an integral vacuum during the mixing process to ensure no air entrapment, and is specially geared to homogeneously mix into liquids heavy fillers such as the phosphor used by Plessey Semiconductors.

I recognised that our [Thinky ARV-310 LED](#) with vacuum and heavy filler capability would provide the high level of air-free mix consistency of the silicone and phosphor, which is required for optimal performance of the completed LED components.



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We also recommended a [Fisnar F7300NV robotic dispensing system](#) for application of the mixed phosphor to the LED assemblies. To help with location accuracy, it has a camera based vision with a resolution of 0.001mm.

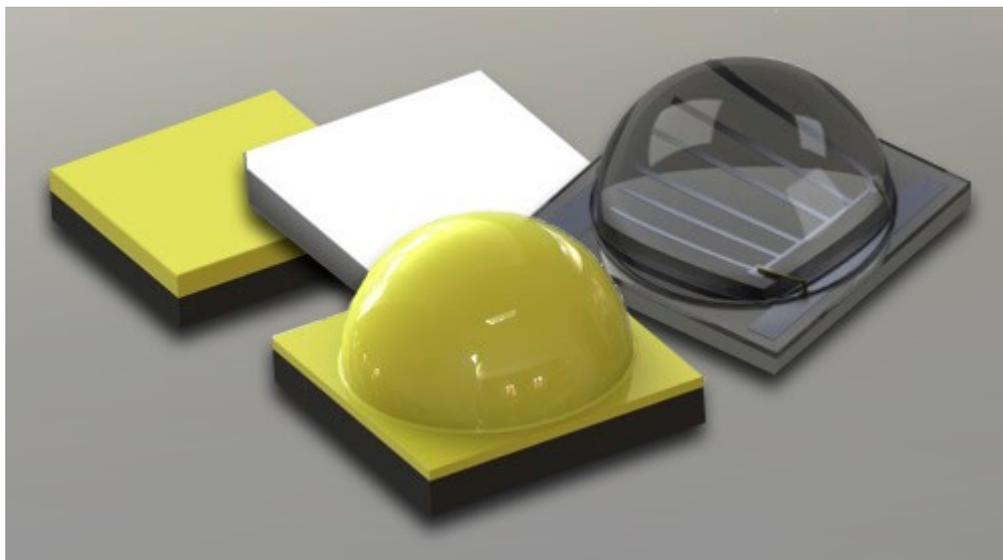


Carl Withers concluded:

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The **Thinky mixer** and **Fisnar robotic dispenser** enabled us to achieve high accuracy process windows, due to the consistency of the mix and the positioning of the dispense, which are both critical to the light output.

[Plessey's MaGIC](#) (Manufactured on GaN-on-Si I/C) High Brightness LED (HBLED) technology has won numerous awards for its innovation and ability to cut the cost of LED lighting by using standard silicon manufacturing techniques.



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