

Cool as ice

IN the approximately 20 years since ultra-violet light-emitting-diode (UV LED) curing lamps appeared in the market, there have been significant technological advances in LED efficiency and curing lamp performance. The initial challenges have been overcome, allowing UV LEDs to gain their place as a mainstream curing technology.

Since 2009, China-based COOL UV's goal has been to displace traditional mercury UV curing technology with more efficient solid-state LED while enabling new applications. Today, UV LED curing technology is an enabling technology that's bringing a host of advanced capabilities to a wide range of industrial applications, and helping print processes to be more productive, versatile and energy efficient.

COOL UV products are represented and distributed in South Africa by Litho Sales and Label. Managing director Wayne van Zyl says COOL UV has a modular design that can easily be integrated into any length of curing lamp. 'Not only is the replacement cost lower – with only the module that requires replacing – but COOL UV can also produce various radiation intensity levels according to customers' needs.'



Assistant technician Manny de Silva during a COOL UV installation.

Financial assistance

WAYNE works closely with The Rental Company, a specialist in asset finance and funding capable of providing straight-forward, economical and hassle-free financing solutions for businesses of all sizes. 'We enable you to rent the equipment your business needs – with no hassle and low costs,' comments senior manager: business development Anche Hollins.

Wayne says this solution grants customers access to world-class equipment such as COOL UV.'

'Unlike banks, we focus on understanding, considering and including all the soft costs associated with your purchases, such as installation, maintenance and training,' says Anche.

COOL UV's self-developed digital circuit driver features shifting speed regulation, which can be adjusted for various ink conditions. 'It has a temperature control alarm for high-power UV; and it provides customers with a standardised electrical interface for fast integration,' comments Jaco van Zyl, who is Wayne's partner at Litho Sales and Label. Jaco heads up all the installations as well as technical and maintenance issues through his own business called Flexo Technical Services.

Jaco explains that COOL UV uses a vertical chip made from a metal/silicon substrate that has better heat conduction than a sapphire substrate, with a larger light-emitting area and low voltage. 'This helps prolong product life and enhances lighting effect,' he says.

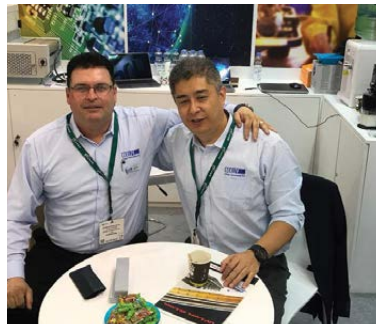
By utilising excellent thermal management and technology, COOL UV lamps' life time extends to over 25 000 hours.

COOL UV's core optical design scheme can effectively increase the peak intensity of the spectrum to between 120 and 200% of the 365nm band of the mercury lamp. 'In the band above 380nm, the peak intensity can be up to five times that of the 365nm band of the mercury lamp,' Jaco enthuses. 'At the same time, the light output can be effectively formed into a uniform continuous spot strip.'

Wayne adds that COOL UV has exceptional temperature control. 'Efficient heat dissipation and temperature control greatly improve light efficiency, chip life and product reliability.' Compared with most domestic lamp-package array solutions, COOL UV adopts the world's leading chip-on-board (COB) technology. 'The chip and the substrate are combined to directly transfer heat to the substrate,' states Jaco.

But the biggest drawback of the COOL UV curing system is the substantial energy cost savings. The manufacturer claims that users save at least 70% on electricity and more than 90% on maintenance costs. 'There are no light sources and components that need to be replaced frequently, saving you a fortune on maintenance,' Wayne concludes.

'There's a common misperception that products made in China are inferior, but this is definitely not the case with COOL UV,' comments Jaco. This is a world-class product that is continuously innovating. Expert engineering has made this probably one of the most efficient curing systems I've ever worked on.'



Litho Sales and Label owner Wayne van Zyl and COOL UV owner Zhang Dongnan.

SuperCure series

After launching the first generation in 2013, COOL UV's SuperCure product has since evolved into its fourth generation. 'The SuperCure series is the most popular and successful UV LED curing system in the printing industry today, with more than 1 000 systems (roughly 8 000 lamps) running on label presses all over the world,' enthuses Wayne.

'The COOL UV SuperCure product not only provides effortless and powerful UV drying,' says Wayne, 'but

the robust and compact design makes the product look sophisticated and matches well with the latest fashionable press designs.'

The SuperCure supports all relevant printing and processing methods like flexo, offset, screen, gravure, inkjet, cold foiling and lamination. 'It not only supports high-quality printing varnish, metallic ink, thick white/black base and heavy pigmented ink, but also higher printing speeds of up to 200 to 250m/min with proper curing quality,' says technical head, Jaco van Zyl.

From the horse's mouth

COOL UV believes that the best way to capture the advanced capabilities of COOL UV is through customer testimonials. We rung up a few of Litho Sales and Labels' customers for an honest review of the UV LED curing systems and working with Litho Sales and Label.

'The output on our former UV LED curing system was 178kW. The COOL UV system that Wayne installed measures 63kW – that's already a no-brainer for us. With our previous machine, we had a continuous 40 metres of paper waste before the UV light would actually switch on. Now, we only have five metres of waste. There's a substantial saving in power and material, and what's great is that we don't have to change the lamps on a regular basis. The former system required us to frequently buy new lamps at R6 000 a pop. This led to costly downtime. However, with COOL UV that's all out the window now.

'The only maintenance we experience with the COOL UV system is changing the water regularly – which isn't a problem at all. This is money well spent. We've put in the system and we've never had to look back, plus Wayne has always gone out his way to accommodate us.'

– **Craig Raunch, maintenance manager at Lithotech**

'From the first encounter to placing the order, we were informed about all technical aspects of the COOL UV system and how the process would work. We were kept in the loop from the time the lights were shipped to the exact time they arrived on site. A Litho Sales and Label representative was on-site during the delivery to ensure all boxes were intact and no damage occurred during transit. Wayne arrived on the date assigned for installation and ensured that the decommission of the old system and installation of the new system went smoothly.

'Testing started on the date given for completion and the system ran smoothly from the very first test run, without us having to make any big changes to our production process. This was a very big change for us, but it went smoothly. Probably one of our easiest changes undergone in a long time, thanks to the Litho Sales and Label team.'

– **Coenie Boshoff, general manager of GM Graphix**

'Ethical and honest, Wayne's easy to work with, always ensuring that everything runs as smoothly as it should. He never shies away from keeping customers informed. You just don't experience that level of service anywhere else anymore. I'll definitely recommend working with him. Not only is he committed and dedicated, but he also offers the fairest prices. We've built a terrific relationship with Litho Sales and Label. What's more, our productivity

has increased since moving over to COOL UV. It has made a massive difference.'

– **Henri Massyn, managing director of GM Graphix**
'We purchased a six-colour COOL UV system via Litho Sales and Label in September 2021. The bracket system was designed ex-works to fit our current flexo press chill drums.

Prior to this installation, we mostly printed water-based inks with our only real experience of UV inks being the use of our sixth station 'conventional UV arc' system. Using the LED units has been far easier than anticipated, especially coming from a water-based background, and we've had no issues with the COOL UV LED to date.

'Another thing that stood out with COOL UV (besides being a good product) is that the system comes with a comprehensive and well-written user and safety manual – probably the best I've seen out of the east. Other things that stand out about the COOL UV unit is the dome lens, which focuses the LED light source in a concentrated area rather than lighting up the whole press shop. We have found the narrow lens on the COOL UV system focuses the LED radiation well enough for good cure performance.

'HMI programming/input on the COOL UV system is very easy and it also allows you to access the factory settings, which is important if you need to tweak a few things. For us, as a small converter, it's vital to keep costs down and have as much control as possible over the unit's HMI functions and beyond, which this system allows.

'The COOL UV system has a plug and play parts replacement feature as well as circuit boards, etc can be changed in-house, saving costs and time, without having to loosen wires. The most maintenance is a bit of cleaning and replacing the chiller water every so often. To date we haven't had to replace any LED sections. If the units are not abused and kept in good operational order, I have no doubt this LED system will provide plenty hours of use and a good ROI.'

– **Richard Kelly, owner of Labeltime**

'It's a real pleasure working with Wayne and his team. He's at our every beck and call and his staff are well trained. The COOL UV system we installed is remarkable. It's made a huge difference to our business from day one, and we haven't experienced a single mechanical breakdown or technical issue since we've installed the unit. There's a massive cost-saving involved. Our energy costs have been cut in half thanks to the COOL UV system. We're happy chappies.'

– **Theo Randall, general manager of Shereno Printers**

