Kimberly-Clark Cuts Energy Consumption With LEDs

Kimberly-Clark

With a global footprint spanning more than 150 countries, Kimberly-Clark's products have become a trusted part of life for 1.3 billion people around the world. At its Family Care Production Facility, at Kluang, in Johor, Malaysia, the company manufactures a wide range of paper products including Kleenex facial tissues, and Scott paper towels.

Aiming to reduce energy consumption and improve visibility within the plant, the company recently replaced 114 of its 400W metal halide lighting fixtures with Dialight's DuroSite LED High Bays. Consuming just 123W, the Dialight High Bays have enabled the company to slash energy consumption and dramatically improve visibility, all while making the work environment more comfortable and safer for employees. The company has been so impressed with the results, it's considering an upgrade to Dialight fixtures at other areas within the mill premise.

Time for an Upgrade

When the Family Care Production Team began noticing low brightness on the manufacturing floor, the K-C engineering team set out to find newer technology to upgrade the existing lighting. One of the biggest contributing factors to the low quality of light, besides the rapid light depreciation natural to metal halide bulbs, was the degradation of the polycarbonate shields installed over each fixture. In the event a light bulb should burst in the overhead fixtures, the shields were designed to prevent a possible spark from igniting the tissue products on the manufacturing floor—a major safety concern. But over time, the shields had become faded and discolored, further reducing clarity under the metal halide lights. The shields were also prone to collecting insects, which further reduced effective light output on the shop floor. Poor visibility was especially an issue in the inspection areas, where low light conditions hindered the quality assurance team's efforts.

Furthermore, because of the region's tropical climate, heat inside the facility was also a problem. The high-heat metal halide fixtures contributed significantly to this issue, which drove employees to switch off the lights to help keep the temperature down. But, with the long re-strike/warm-up times required for the lights to come back up to full output, this presented a significant safety concern.

Driven To Lead Sustainable Manufacturing Movement

In addition to visual acuity, the company also aimed to cut energy consumption. As one of the largest manufacturers in the world, K-C is committed to saving energy and optimizing efficiency worldwide—and serving as a leader in this movement throughout the Asia-Pacific region with its global Vision 2015 program. But, the Kluang facility's current lighting efficacy was a paltry 12.49W per square meter (W/m2), mostly due to the fact that the lights were illuminating areas that were unnecessary, and they were often left burning when not needed to avoid the wait for restrike/warmup.

Dialight Outshines Local Competition

As the K-C team began evaluating options, they immediately looked to LED solutions, and even considered solar-powered products. Due to their location, they naturally evaluated products from local

suppliers, including LED companies from Singapore and China. However, the North American-made Dialight High Bays offered better efficiency, shorter payback period, and a longer lifespan backed by a full 5-year warranty—compared to just 2 years from the other suppliers.

The company's global reputation and impressive list of customers were also determining factors. With the largest installed base of LED high bay fixtures in the world—more than 50,000 to date—Dialight's experience gave K-C facility managers the confidence that product they'd chosen was already a trusted solution on a global scale.

The K-C team was also impressed with the 3D lighting simulation provided by Lumina Systems, the regional distributor of Dialight lighting products, which gave them a preview of the results before the fixtures were even ordered.

"With the lighting simulation, we could clearly see the optimum lighting layout for the space to be illuminated," said Adam Lua Boon Chin, Project Engineer, Kimberly Clark Products. "We knew before installing that light would be directed exactly where we need it."

Energy, Maintenance Costs Shrink

With a 60 percent reduction in energy consumption, the K-C facility has been able to dramatically reduce its electricity costs. Now, lighting efficacy is at 4W/m2, less than a third of the wattage required with the metal halides units. And because of the instant-on capability of the Dialight LEDs, K-C is also free to turn off the lights when they're not needed, and can even strategically light only certain areas of the facility, such as alternating rows or only the perimeter, to save on energy use.

Because the Dialight products are expected to last up to a decade without ever needing a bulb change, K-C has also been able to reduce maintenance costs and demands at the facility. Changing bulbs in the existing metal halide fixtures not only interfered with production but also posed a safety hazard, as most of the lights were positioned above the manufacturing equipment. The Dialight fixtures virtually eliminate lighting maintenance, delivering improved quality of light while maintaining consistent light levels over their life.

And, since the lights themselves are fully enclosed and sealed to meet the HACCP and AIB food safety requirements, the risk of bursting bulbs is gone—as are the problematic spark shields. The lights are also much cooler, operating at less than 46 degrees C, compared up to 232 degrees C for the old metal halide units.

"Not only have the products performed exactly to our expectations, Dialight has provided us with thorough and professional support, which has also been very important for making this project a success," said Chow Weng Leong, Engineering Manager at the facility.

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