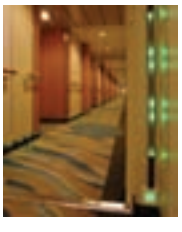
# LED to safety

**What does the world's largest cruise ship, Oasis of the Seas, have in common with Madrid Metro and Amsterdam Metro? The answer is a low-level lighting system that is currently taking the evacuation world by storm. Welcome the dynamic guidance MILS system from Finnish company MariMils, which is making its way into both indoor/outdoor environments in offshore platforms, refineries, and road tunnels amongst others: Jose Sanchez de Muniain finds out more.**



*Although the MILS system has recently been installed in the cruise ship Oasis of the Sea, a thicker version is being considered for use in rail tunnels.*

At the heart of the MILS system is a patented very low power dynamic LED stripe that is typically mounted on the floor, in handrails, or at low level on the walls. 13,000 metres of this stripe has been recently installed in Royal Caribbean's Oasis of the Seas, and its sister ship Allure of the Seas will also be fitted with the same system when it is launched later this year. So what makes MILS special?

MariMils' Palle Stevn, VP Sales & Marketing, explains that at the core of the solution is its ultra-reliability and low maintenance. "The way the product has been manufactured is that everything is encapsulated so corrosion is zero, even in areas where there is high humidity and salt. Next, it is immune to vibration and as the system components is surface mounted, there are no aluminium legs that can be damaged. This means maintenance is close to zero."

The stripes are part of a dynamic system that even on standby mode conducts self-monitoring in real time – basically checking there are no errors in periods of three seconds. "If there is a hole in the system, it will tell you it is not working, where the fault is, and how to repair it. This negates the necessity for manual visual checks on a regular basis."

## Extra dynamics

The MILS system can connect to existing fire detection or other detection systems, and is able to initiate different evacuation scenarios, and can even be set up to automatically re-routing to a secondary escape route if a primary route is blocked. "If there is a fire in the accommodation area of an oil platform, the system will receive data from the detection system as to where the fire is located. Our software will initiate the appropriate the escape routes, displaying the information as a 3D image of the complex."

The escape routes are designed by the end user and approved by the emergency authorities, and then the guidance templates integrated into the system. "We do it in 3D, and show the end user a visual representation of the facility, where we can then run simulations."

## ATEX, offshore rigs, and tunnels

Although no official ATEX certification has yet been sought for MILS®, Stevn points out that a stripe that would meet such requirements has already been produced by adding extra encapsulation to the stripe and ATEX-type boxes for the system's central console. "There has been some evidence as a result of safety investigations that in many platforms emergency lighting has not been working to the levels expected. This is because they are static systems that don't self monitor. We believe this is dangerous and we would like to say that we have products now that are ready for use in offshore platforms, both for guidance inside and outside, with our new MILS High Bright stripe."

The MILS High Bright stripe has been developed for outdoor and tunnel lighting applications, whilst taking ATEX requirements into consideration. It is 20 times brighter than the original MILS solution, slightly thicker at 4mm by 22mm. "It is being considered for use in rail tunnels too because it has very low power consumption. It can be set up so that only two LEDs are being used for normal use, but in an emergency it can be doubled to four LEDs, fulfilling requirements for lighting an escape route. Power consumption for normal usage is around 1.7 watt per metre, while a normal light bulb in road tunnels might have an output of 150-300 watts per unit. And as per the original stripes the MILS High Bright requires minimal maintenance."

## The future

MariMils is at the stage where it has a product that is adaptable to a plethora of different applications – the problem for Stevn is knowing which ones to pursue the hardest. The in-joke in MariMils is that whenever they go to a customer with a suggestion of an application for MILS, they come back with five different applications. Having so far this year released their new High Bright stripes and a range of new decorative stripes, MariMils have plans to add two further stripes this year to their product range.

And recognition has been received – in 2009 MILS won the Fire Excellence Awards 2009 award for Best Project Design, for a Belfast cinema that was looking for a system to evacuate 1,500 people, along with ADT.

The future, one may think, is definitely bright.

## MILS High Bright Stripe: at a glance

- Thickness only 4.0mm
- Compression resistance >360kg/cm2
- Non-toxic
- IP68 rated (waterproof and dustproof)
- Flexible and hermetic construction (air tight)
- Tested for: high resistance to fire, tearing, abrasion and chemicals
- 12Vdc maximum power consumption: 3.5 W/m
- Long lifetime (100,000 hours except whites which are 50,000 hours)
- Available in white, warm white, green, blue and red.