

Our cutting edge patent protected products will undoubtedly change the face of mining today using proven LED technology that is seen everywhere from TV's to Car Lights even in every underground mining vehicle and head lamps used today.

Although this technology is more expensive than conventional technology, most major corporations and their prospective clients have moved towards the exclusive use of this technology because the future benefits thereof is what drives and motivates these visionaries.

The initial and most obvious observation is the distinct loss in luminescence of the CFL light fittings which drops sharply after only 40% of their lifespan, and in what would be considered a short period of time will drop below the required 20 lux which was already measured in some instances at 18 lux.



The general mood we experienced in the chairlift was one of high morale and lifted spirits but as soon as we moved to the opposite tunnel where the luminescence had subsided remarkably and there was a poor light quality there was a profound drop in mood. The atmosphere turned immediately morbid and a mild confusion and disorientation was evident which were the obvious effects of poor Ergonomics.

Energy Efficiency, Power Factor Correction

Using advanced *solid state lighting* which is the next generation in LED technology with **power factor correction of 0.98**, HALO delivers an unparalleled energy efficient lighting solution which provides an **average energy saving** of up to **50%**, and even as much as **80% or more** compared to most commonly used installations today. Having a vast range of solutions ranging from **1 LED per meter to 60 LED per meter**, no longer will you be limited in underground lighting with Halo able to provide **tailor made solutions** for a multitude of tunnel dimensions, conditions and applications, providing a consistent luminescence throughout and maximizing on energy efficiency qualities.

The lighting is **completely modular** with bends, crosses and tees available with all solutions completely integrate able being able to join any LED configuration i.e., 3,6,12 and even 60 LED per meter together on one run to allow high or low bright areas wherever required.

These configurations can be changed and manipulated with absolute ease and as much as is required.

Installation

Installation is effortless, by simply strapping the lighting to any available structures and due to its extremely low profile and IP 68 rating, it can be fixed in areas where before conventional lighting would've been impossible. To deter possible theft we recommend frequent intervals of medium duty PVC cable straps and alternate stainless steel cable straps.

The HALO range is also easily integrated into existing infrastructures with the added benefit of leaving existing lighting intact and simply picky-backing off the supply with minor modifications at the beginning and end of each run, although new installations require cabling however of low cross sectional area 1.5mm, savings can also be attained at design stage for the lighting infrastructure due to its energy efficiency.

The system can be fully portable if required with easy removal and re-instatement from supply then simply rolled up, stored & relocated at will.

Repairs & maintenance

HALO Lighting is supplied by low voltages of 12, 24 or 36 Volts which means that repairs and modifications can safely take place under live working conditions and should the lighting be damaged there is **no risk whatsoever of electrocution** unlike conventional lighting, with further added short circuit, over current, over voltage & over temperature protection.

Repairs can be undertaken by **unskilled personnel** with minimal training without the need of electrician, and damaged areas can be replaced in record time with absolute simplicity.

Designing tailor made solutions

Halo has a vast range of solutions and configurations that is suited for all applications and the although the initial temptation is to go for the higher brightness options these are not always suited for the long run tunnel applications but more for critical areas requiring high luminescence. These high concentrations of LED's have shorter runs capability & subsequent more costly power controllers are needed at each end of each run and therefore it is imperative to carefully consider all available options.

In an effort to assist in this process and to that our clients are 100% comfortable with what they purchase and it is exactly what they require we offer clients the option to purchase a variety of HALO solutions and test them

in their respective areas, thereafter once the perfect solution has been identified and standards established, the samples that was not

Lifespan & warrantee

With an estimated **lifespan** of up to **1 decade** and literally **maintenance free**; with HALO you will never need to change a globe again making dangerous dark spots due to damaged or blown lamps, nothing more than distant bad memory and **turning your maintenance costs into savings.**

HALO is manufactured using only the **best components available** using cutting edge technology and are supplied with a **full 4 year guarantee** being designed & built to last.

Extracts from Philips Netherlands Industrial Lighting & Productivity

Working in poor or low quality lighting or from light sources with luminance ratios that are not well balanced, people can suffer eye strain, headache, low morale, reduction in mental alertness, general malaise, carpal tunnel syndrome, absenteeism and fatigue, resulting in poorer performance and high human error rates. There is clear evidence that many types of industrial accidents can be avoided by providing better seeing conditions. Increasing the quality of light can increase the productivity by on average 8% but as much as 20%

unacceptable funds are being spent by replacing stock of damaged lights, and maintaining this lighting solution with dedicated technical teams doing nothing else but repairing the damage.

Conclusion

It is obvious that the current CFL technology and the lighting solution utilised however reasonably effective, is not the perfect solution for the underground mining environment with a lot of potential draw backs, some of them potentially dire.

We can with utmost confidence state that our system **will add significant value**, by providing cutting edge and innovative 21st century technology that will be on par with the rest of the mine ethos; and by *providing crisp, high quality, consistent lighting* that **saves +- 37% energy**; the safety, moral and general efficiency of the workforce should experience a remarkable and immediate improvement.

Our system although not impervious to damage is very low profile and **extremely resilient to direct impact** and is **100% water, dust or moisture proof**. The possibility of electric shock is effectively nullified should the terminals be exposed and our solution is **100% recyclable with no trace of toxicity whatsoever**.

It is *extremely low maintenance* and can last for up to 6 and even 9 years the exception, and you will **never experience a blown lamp or dark spot again**.

In conjunction with our mandatory 2 year warrantee, we also have a 4 year warrantee option available which will effectively ensure that your installation remains worry free for that duration.