

EXPLOSION-PROOF NDT

Aerospace companies are using explosion-proof non-destructive testing equipment to minimize operational risk

UV lights are used when performing inspections in non-destructive testing, more specifically in magnetic particle inspections and liquid penetrant inspections. Every day thousands of aircraft components, new and used, made from ferromagnetic materials, are tested at production sites and maintenance shops to detect surface or slight subsurface discontinuities. Faulty components are identified and removed and accidents are avoided by engineers and technicians performing non-destructive testing.

Inspections are often made near sites that are classified as hazardous locations. These can be areas such as close to a refueling station, on a military aircraft carrier, or on an offshore oil rig platform where helicopters are stationed. Typically such locations are classified as Zone I, Zone II or Zone III, depending on how high the risk of explosion is considered. Explosions at hazardous locations have on many occasions caused loss of life and destruction of physical assets.

UV lights without an explosion-proof classification are used today in hazardous locations around the world, causing expensive shutdowns of operations. Performing a required inspection with an explosion-proof product, which fulfills the requirements of the area where the inspection take place, ensures that the UV light used will not be the cause of an explosion, even when used close to the assets which are operational.

The cost of replacing or repairing an oil rig, a refinery, a fueling station, or ceasing operations so that maintenance can be conducted, is potentially massive compared to the small investment that is made in an explosion-proof UV light.

Asset owners and operators with locations in their operations classified as hazardous, as well as insurance companies, are paying more and more attention to the prevention



of accidents and safety. The current trend in all areas that are considered hazardous is the use of explosion-proof products. Many organizations worldwide, including armed forces, have adopted this requirement in their own specifications.

The MB Hercules Ex is an explosion-proof handheld UV inspection light, and an extremely durable and safe product. It has successfully completed several very tough tests, among them stringent tests for thermal conditioning, impact tests, drop tests and ingress protection tests. The tests have enabled the MB Hercules EX to be ATEX certified for Group II, Zone II (Certificate: ITS17ATEX402144X). The product is also suitable for use in extreme weather conditions, operating in temperatures varying from 104°F (40°C) to -4°F (-20°C).

Furthermore, Hercules Ex has successfully completed all tests and audits, leading to its certification for IECEx (Certificate: IECEx ITS 17.0056X), NFPA 70 Article 500 for Class I (division II locations) and the US military tests, salt fog test and explosive atmosphere test. In addition, the Hercules Ex has an ingress protection rating of IP66.



1 // The full MB Hercules Ex package

2 // Close-up of the MB Hercules Ex light

MB Hercules Ex is in compliance with ASTM E3022-15 standard, Rolls-Royce RRES 90061 engineering specification and Airbus AITM6-1001 (issue 11) testing methods. These are the primary standards followed by the manufacturers of LED UV lights in non-destructive testing and ensure the quality of the unit as well as the uniformity of the UV output and the stability of the wavelength (365nm). These are critical elements required on a UV light to perform inspections.

This unique inspection UV light is battery powered, has four UV LEDs and generates an intensity of 4,000µw/cm² with a beam size of 19cm (7.5in). It is a portable device, extremely light and compact, that weighs just 888g (2.0 lb). It can be carried without any inconvenience, even in the most remote locations. The overall running time of the battery is six hours and the device can be recharged either from wall power outlets or a car charger. \\

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