

U-50

50 Watt Ultra Rad-Hard Ultra compact LED Luminaire



Product flyer, Version 2.0, April 2023

Ultra compact nuclear grade LED Luminaire for Hot cells

U-50 is further development of our compact Ultra radiation resistant hot cell Luminaire, the **C-50**. The **U-50** is smaller, lighter with better photometric properties than the predecessor.

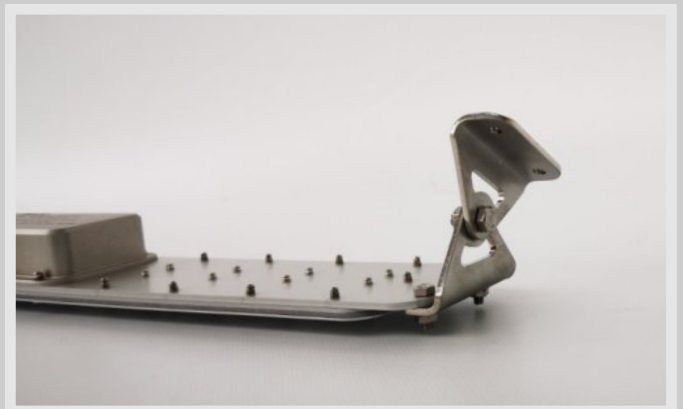
Small form factor enables the **U-50** to be inserted through the circular **74 mm** opening.

U-50 is Nuclear grade, Ultra radiation resistant, Ultra compact LED Luminaire, designed primarily for Hot cell lighting. The Luminaire is based on our proven **H** Series of Ultra Rad-Hard LED products, sharing the same radiation resistance properties. The Luminaire has been tested to total integrated dose (TID) of more than 500 kGy (50 Mrd) gamma.

U-50 is true “all in one” product. The complete electronics is built-in inside the Luminaire. The unit is connected directly to the mains, without any external boxes mounted elsewhere outside radiation area.

The housing is made of aluminium. The unit is small, compact and very lightweight, therefore easy to handle. Despite small form factor, overall system efficacy is more than 140 lm/W.

U-50 is preferred choice for Hot cell lighting, replacing mature lighting technologies, like fluorescent Lamps.



U-50 is designed for dry places, where ambient temperatures do not exceed 60 °C. Beside hot cell applications, **U-50** can be used in any nuclear application with high radiation impact.

U-50 uses silicone optics. Silicone optics is flexible, has operational temperature range of over 200 °C, is 100 % shatter proof and chemically stable.

Custom holders are available. The Luminaire is equipped with 5 meters of high performance, radiation resistant mains cable. Other lengths are available on request.

For latest, up to date information please visit:

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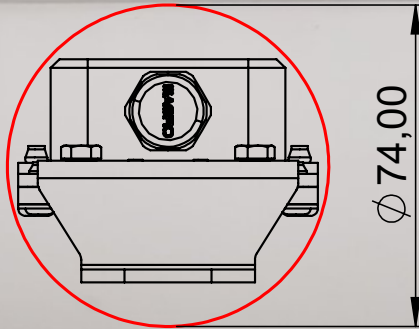


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50 Watt Ultra Rad-Hard Ultra compact LED Luminaire



Our ultra compact design enables simple upgrade of existing lighting in wide variety of hot cells worldwide. **U-50** can be inserted through the circular opening of 74 mm.

Specifications:

Rated power:	50 W
Available voltages:	100, 120, 220, 230, 277 V
Power factor:	> 0.9
Luminous flux:	> 7000 lm
CCT:	4800 K
CRI:	> 80
Luminaire efficacy:	> 140 lm/W
Electronics location:	built-in, internal
Housing material:	Aluminium
Optics material:	Silicone
Ingress protection:	IP 50, dry places
Impact protection:	IK 07
Ambient temperature:	-10 °C to 60 °C
Cable length:	5 m
Weight, w/o cable:	0.9 kg
Dimensions, w/holder:	656 × 69 x 52 mm

Warranty: 5 years

In compliance with (partial list):

MIL-STD-883, Method 1017 neutrons
MIL-STD-883, Method 1019 gamma
ESA ESCC No. 22900 gamma

2014/30/EU (EMC)

2014/35/EU (LVD)

Radiation tolerance:

Gamma TID:	5×10^5 Gy
Neutrons 1MeV (Si):	5×10^{14} n/cm ²

Reliability (environment: GB @ 50 °C):

Calculation method:	MIL-217F N2
MTBF:	3.758.857 h
Predicted lifetime:	> 22 years
Confidence level:	95 %

Notes:

Irradiation tests performed inside the core of the TRIGA MkII nuclear research reactor with the representative NPP spectrum.

Different input voltages versions are available: 100, 120, 220, 230 and 277 VAC/VDC. Mains frequency can vary between 45 and 65 Hz. The Luminaire does not support wide input voltage range.

The Luminaire is designed for professional use only.

Custom cable length and custom Luminaire holders are available on request.