

WILNOS - Film Viewing Unit WilnoLED - "Universal"



WilnoLED - "Universal", Li.-No. 20 15 02, Protection of utility patents 2007

The all new WilnoLED film viewer has introduced LED technology to radiography. The efficiency of LED's is much more higher than of the former halogen lamps because they create only 'cold' light totally without heat radiation. The power input required to achieve the needed luminance of the viewing screens is substantially lower than for halogen lamp units. With only low heat to be removed, the fan on the WilnoLED film viewer is now whisper quiet.

Their light colour 'white' is often felt by film viewing personnel to give more contrast than the light from halogen lamp units with the same measured brightness. Furthermore the LED colour 'white' does not change when the unit is dimmed. Dimming of halogen lamps fades more and more to yellow light.

The high luminance of the LED viewing units requires a high number (hundreds) of single light sources, leading to very uniform light distribution on the screen.

An essential advantage of the LED's is their extremely long life. With an expected life of more than 40,000 hours, a viewer's light source should last around 20 years if operated 40 hours per week.

The WilnoLED consumes around 18% of the energy of the equivalent halogen lamp viewer at maximum power, 4.6 % of power at basic brightness. The combination of energy saving and zero lamp replacement costs will quickly offset the initial purchase price of the WilnoLED. An additional benefit of the WilnoLED is reduced heating of the viewing room. This is an immense benefit during summertime in hot climates. Testing of the WilnoLED has been extensive in heavy conditions with zero failures after more than one year of usage, prior to international release.

The WilnoLED viewer is particularly suitable for NDT education where the new viewers can be integrated harmonically into the pool of the older ones. The very low heating of the valuable demonstration radiographs allows a practically unlimited viewing time without any risk of damaging the films.

- **Luminance approx.** 60,000 cd/sqm
optical Density (diffuse optical density)
D = 3.8 in accordance to EN 25580
- **Viewing area** 8.5 x 22 cm, with 2 additional masks
- **Continuous brightness** control from 5 to 100%
- **Switchable** between permanent and Foot switch mode
- **Adjustable basic brightness** control during foot switch mode
- Power cable and foot switch connected with plugs

Electrical data	100 - 240 V, at 50-60 Hz, 150 VA
Housing size	B 412, H 210 mm, T 173 mm
Weight	6.3 kg net
Housing	Powder coating

Table 1

Operation Expenses			
Assumption of consumer adoption and average daily useful life			
Operating time with 50% duty ratio (50% full brightness , 50% basic brightness)			
Calculated energy costs: 0,20 €/kWh - 250 Working days p.a.			
	Halogen tube high voltage	Halogen bulb low voltage	LED
daily 2 hours	462.50 kWh 92.50 €/a	195.00 kWh 39.00 €/a	29.25 kWh 5.60 €/a
daily 4 hours	925.00 kWh 185.00 €/a	390.00 kWh 78.00 €/a	58.50 kWh 11.20 €/a
daily 6 hours	1387.50 kWh 277.50 €/a	585.00 kWh 117.00 €/a	87.75 kWh 16.80 €/a
daily 8 hours	1850.00 kWh 370.00 €/a	780.00 kWh 156.00 €/a	117.00 kWh 22.40 €/a
daily 12 hours	2775.00 kWh 555.00 €/a	1170.00 kWh 234.00 €/a	175.50 kWh 33.60 €/a
daily 16 hours	3700.00 kWh 740.00 €/a	1560.00 kWh 312.00 €/a	234.00 kWh 44.80 €/a

Table 2

Power benchmark	Power at max. brightness	Power at basic brightness	Luminance
Viewer with high voltage halogen tube nominal value (new)	1300 W	550 W	50,000 cd/m ²
Viewer with low voltage halogen bulb	585 W	195 W	50,000 cd/m ²
Viewer with LEDs	100 W	12 W	60,000 cd/m ²