

# Lower operating costs and operational simplicity

Barco's flagship, DP4K-60L premium laser cinema projector brings a wide range of benefits to large screen theatrical exhibition, including unsurpassed image quality, application flexibility, operational simplicity and dramatically lower operating costs. This paper will focus on the powerful benefits of lower operating cost and simplicity of operation. The entire line DP4K-L product line provides these benefits, but the focus here will be on the DP4K-60L, where the value shines brightest.

Laser illumination is a paradigm shift for performance projection. It eliminates the need for lamp replacement and all the variable operating expenses of a lamp-based system. The Barco DP4K-60L was designed to extend to the max, the two fundamental value drivers of the technology – *high spatial brightness* and long and reliable *light source lifetime*.

Brightness in lumens times lifetime in hours (Mega-lm-hours) determines the operational value of the laser light system and provides a basis for comparison to existing Xenon or other laser-based solutions and for calculating the lifetime operating cost savings.

## Operational metrics for the DP4K-L family

Metric	Unit	DP4K-60L	DP4K-45L	DP4K-30L	DP4K-22L
Maximum projector output	Lumens lm	56,000	44,000	28,000	22,000
Minimum light-source lifetime	Source life with <20% roll-off	30,000	30,000	30,000	30,000
Light-source capacity	Mega-lm-hours	1,680	1,320	840	660
Wall plug efficiency (WPE)	Lumens / wall plug watt	5.8	5.7	5.0	5.0
Maximum wall plug power	Kilowatts kW	9.7	7.7	5.6	4.4

For comparison, a high brightness Xenon lamp projector has an average output of 24,480 lm over its 500 hour lamp lifetime – a light source capacity of 12.2 (Mega-lm-hrs) and a WPE of 3.3 lm/wpw.

One can use the figure from this chart to calculate the substantial direct cost savings of a DP4K-60L laser solution to an equivalent "double stack", large screen, Xenon solution. One high brightness 60L laser projector delivers the same output on average as *two* high brightness Xenon projectors and *120 lamps*.

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## Operating metrics and cost comparison – case study

“High brightness/large screen/single projector operation”

Projector	Brightness	Lamp cost	Lamp change cost	Power consumption	Total power	Power cost
Metric	Average lumens over 30,000 hour lifetime	\$1,250/lamp x number of lamps= \$	Labor \$/change x \$50/hr=\$	kW	kW-hr	kW-hr x \$0.12/kW-hr=\$
DP4K-60L	50,500	N/A	N/A	9.7	291,000	34,920
Dual 32B Xenon	49,500	120 x \$1,250	2,400	15.0	450,000	54,000
Savings	~=	150,000	6,000	5.3	159,000	19,080

Lifetime operating cost savings Laser over Xenon = \$175,080.

But this is only the beginning. The DP4K-60L delivers additional variable operating cost savings and does so with remarkable flexibility and simplicity.

### Additional operating cost savings

- No lamp negotiations and purchasing
- No lamp stocking, handling, installation, removal or disposal
- No lamp training and replacement labor
- No lamp changes required for 3D to 2D brightness shift
- No warranty administration, negotiations or accounting
- No reflector, striker, cold mirror or lamp-related replacement parts or labor
- No dual projector alignment, brightness or color balancing
- Reduced power consumption compared to Xenon and other laser systems
- Significant lifetime power savings

### Simplified operations and other savings

The powerful 60L can replace two of today’s brightest Xenon projectors with a simple, single projector solution, providing full and constant 2D brightness for a 115 foot wide (35m) 1.8 gain screen.

The DP4K-60L comes complete with an integrated, efficient, laser 6P 3D illumination system capable of 14fL (48 cd/m<sup>2</sup>) on a 53 foot screen, (17m) or 7 fL (24 cd/m<sup>2</sup>) on a 75 foot (24m) screen. This single projector system needs only one lens, one versatile Alchemy integrated cinema media processor (ICMP) and does stunning color 3D with no additional hardware purchases or equipment leases. Operating in native 6 primary 3D mode further reduces power consumption and further extends light source lifetime, as each set of RGB primaries is only powered half of the time.

### Summary

- Simple, single projector installation, operation, maintenance
- Up to \$150,000 or more savings in lamp/parts replacement costs
- \$15,000-60,000 in lifetime power savings depending local \$/kW-hr costs
- Lifetime total savings of \$100,000 - 210,000.