Bigger, better, brighter – premium 3D

One of the most important capabilities enabled by laser illumination is the ability to project bigger, better and brighter 3D images than can be achieved with a single or even dual xenon-projector system. Barco's highly engineering laser illumination more than doubles how much light can be transmitted through a digital projector, making it the ideal solution for brighter 3D – making laser 3D the premium theatrical experience originally intended.

The problem

All first generation 3D systems were aftermarket "bolt-on" approaches and all cut the brightness of 3D by 75-85% or more and this, with a fresh lamp. Some systems are down more than 90% with a depleted Xenon lamp. This brightness cut necessitated the installation of high gain screens, polarization recovery systems ("light doublers") and in extreme cases, "dual-stacked" projectors, each with their own 6.5-7kW lamps to change, match and adjust.

The Barco DP4K-L laser solution

Barco's DP4K-L family of high brightness laser projectors addresses this problem head on, and solves it beautifully, without forcing exhibitors into any specific 3D technology. This, integrated, single projector laser system brings unsurpassed brightness, image quality – flexibility and simplicity, solving all the major drawbacks of current 3D systems.

- More than double the average brightness of the brightest Xenon projector
- 30,000 hour light source lifetime at full power, outperforming Xenon by more than a factor 100
- Supports all major types of 3D
- Integrated *Barco Laser3D* – 6P color separation system with no ghosting
- Single projector operating simplicity
- Full 4K image sharpness and high contrast
- Macro-switchable from 2D to 3D and back

Barco DP4K-L product family – all kinds of 3D for any size screen

The Barco laser projection system is cinema-optimized, providing a high level of capability and flexibility. It addresses a very wide range of applications. Deployable from small screening rooms to premium large format (PLF) auditoriums. The output of each model can be electronically adjusted or selected via presets from 100% down to 25% brightness, with corresponding reductions in wall plug power consumption.

Model	Max 2D output (lm)	Max wall plug power (kW)	Min wall plug power (kW)
DP4K-60L	56,000	9.7	6.1
DP4K-45L	44,000	7.7	4.8
DP4K-30L	28,000	5.5	3.6
DP4K-22L	22,000	4.4	2.9

The DP4K-L family of cinema laser projectors can be used with any of the major aftermarket 3D systems, Polarized/Circular; Polarized/Linear; and active glasses The efficiencies (%) of each system are the same as when used with Xenon, *but the projected light output is double that of corresponding Xenon projectors*. This, combined with simple, accurate 3D/2D transitions, make the DP4K-L line, the most flexible and capable premium 3D platform on the market. But there is more...

Barco Laser 3D – integrated, single projector "6 Primary" Color 3D

Each model in the table above, comes with a Barco exclusive. Its laser engine is comprised of two sets of Red, Green and Blue (RGB) primaries, each one spectrally offset from the other. The left eye and right eye RGB laser primaries of this engine can be electronically switched, providing buttery smooth 3D without the "dark time" inserted for filter-wheel Xenon color 3D. This is the beauty of a controllable light laser source.

The Barco Laser 3D 6P system requires no additional hardware or special screen. It is more than twice as efficient as any other single projector, lamp-based color 3D. It starts with twice the brightness and stays there. Because the laser engine produces only the RGB primaries required, there is not filtering required in the projector. As the Left and Right eye primaries are only powered when required, the projector consumes only half the power in color 3D mode, reducing the power bill and *extending laser lifetime*.

A single flagship DP4K-60L can light up a 75 foot (24 meter) 1.8 gain white screen at 7fL and a 53 foot (17 meter) screen at 14fL, opening up a nearly all the world's screens to consistently bright, laser-sharp, high contrast 3D.

Premium 3D image quality

Brightness is the key to premium 3D image quality and laser is the key to 3D brightness – to increase it and keep it constant and uniform for the life of the projector. In addition to brighter 3D, the DP4K-L family has higher 4K contrast than Xenon 4K projectors. Typical contrast values of 2500:1 exceed the DCI spec and provide noticeably better blacks and a wider dynamic range in 3D.

In addition to higher and more consistent brightness, the DP4K-L family brings several additional benefits to Premium 3D. Barco Laser 3D glasses have very high transmission *(>92%)* and all the power from each primary set is in the passband of its respective glasses lens. No filtering in the projector is required. This is what makes Laser 6P so efficient. Furthermore, as the primaries are narrow band and widely separated, 3D ghosting is completely eliminated, achieving stereo contrast beyond 500:1, more than double that of most other 3D systems.

The near perfect brightness uniformity produced by the integrated laser engine minimizes the center to corner roll-off that comes with any gain screen. This is especially important for high gain screen applications. With corner *illumination* near equal to center brightness, the corner illumination of the gain screen is maximized, giving great brightness to every seat in the house.

Finally, the crisp images that are produced by a single projector system combined with highly saturated laser color bring 3D image quality to a bold new level.