Virtual & Augmented Reality

IMMERSIVE AND STEREOSCOPIC DISPLAYS AND SOLUTIONS

Barco and its Partners provide state-of-the-art products and solutions for immersive and stereoscopic displays, from curved-screen BR CENTERS and multi-channel CADWALLs, to portable light-valve 3D display systems. With the widest range of CRT, LCD, and DLP™ technologies, BARCO offers expert system design and integration, and reliable customer service worldwide. Global references range from virtual prototyping in the automotive industry to molecular modeling and scientific research in the oil & gas industry.
Immersive 3D Impact

Active & Passive Stereo Solutions

Active Stereo
The viewer wears special eyewear consisting of two IR-controlled LCD light shutters working in synchronization with either a ‘fast phosphor’ green CRT projector or a stereo-enabled DLP™ projector. When the projector displays the left eye image, the right eye shutter of the active 3D spectacles is closed, and vice versa.

Passive Stereo
The viewer wears a pair of glasses equipped with oppositely polarized filters for the left and the right eye. The light from each of two projected images is equally polarized and passes only through the corresponding filter. Two projectors or a single CRT or stereo DLP™ projector with a Z-screen, and a non-depolarizing projection screen are required. Barco’s passive stereo solutions use either linear- or circular-polarized light.

- **Linear polarization** is a cost-effective technology resulting in excellent image separation between the left and the right eye for applications where only limited head tilting is possible.
- **Circular polarization** is a high-end technology for excellent image separation between the left and the right eye and is independent of head tilting.

Advanced Screen Technology
In close collaboration with leading screen suppliers worldwide, Barco evaluates and develops the optimal screen technology for systems using polarized light and blended multi-channel display.

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<thead>
<tr>
<th>Setup</th>
<th>Channels</th>
<th>Stereo</th>
<th>Rigid or Flexible Screen</th>
</tr>
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<tbody>
<tr>
<td>front</td>
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<tr>
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<td></td>
<td>passive circular</td>
<td>conical curved</td>
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* blending optimized

Expert Projection Alignment Software

POLARIS is a time- and effort-saving tool that is used to adjust projection systems to their maximum capabilities. The software, intended for SGI’s IRIX™ based systems and other platforms*, produces user-defined test patterns needed to align projection systems. POLARIS can generate pre-distorted patterns for flat, cylindrical, dome-shaped, torus-shaped or conical screens on multi-pipe and multi-channel systems. It can be used for both geometric and color adjustments.

* for more information contact BARCO

The Wall Street Journal Conference at the Conrad Hotel in Brussels

visit Barco’s stereoscopic projection pages on [http://www.vr.barco.com](http://www.vr.barco.com)
Barco’s CADWALL™ is a large screen display wall featuring a multiple edge-blended projection system. The CADWALL™ can serve as a design and engineering tool, for interacting with stereoscopic 3D models, or it can be used as a presentation tool for many different applications. The brightness, high resolution and color depth of the display make it the solution of choice in the Automotive, Oil & Gas, and other industries.

Customized CADWALL™
Screen size, projectors, configuration and dimensions can all be defined according to customer specifications to provide the optimal display solution.

MICA
Transportable, all-in-one, compact display solution containing two 3D-optimized BarcoREALITY SIM 6 projectors, a rigid passive-stereo screen (1.68 x 1.35m / 5.50 x 1.35ft.) and Barco’s DUET active-to-passive stereo convertor. Quick set-up and alignment.

ODYSSEY
Freestanding, two-channel (2.66 x 1.18m / 8.7 x 3.9ft. screen) or three-channel (3.84 x 1.18m / 12.6 x 3.9ft. screen) display for collaborative project review and conceptual modeling. Extremely high resolution and high contrast images in normal environment light conditions.

MoVE™
With its smart and robust modular design, the Barco MoVE™ is a multi-purpose Virtual Environment. This all-in-one solution enables straightforward, accurate and fast reconfiguration of the system into a CADWALL™, an I-Space™ sandwich configuration, or any position in between.

Flat Screen Configuration
Encourages greater collaboration and facilitates project review amongst a large team. Barco provides optimal image continuity due to the minimization of the seam between the screens of adjoining modules. Screen size: 9 x 2.7m / 29.5 x 8.85ft.

Transportable CADWALL™
Self-supportive, multi-channel compact modular construction with fast and easy set-up. Screen: 4.5 x 2m / 14.7 x 6.56ft.
Immersive Theater Configuration

The modules are placed at an angle ranging from 0° to 90°. It can accommodate approximately 20 viewers and is suitable for collaborative work in a partially immersive environment. The side modules can be rotated and lifted in a frictionless manner by using air cushions or a crane.

Customized BR CENTER

Configured for a permanent installation in an existing infrastructure, it can be designed according to the requirements and budget of practically any organization.

Transportable BR CENTER

Sports a compact and innovative design that provides an immersive 150° horizontal field of view on a screen of 2.1 m/ 6.89 ft. (42.1° vertical field of view) height and gives it a footprint of less than 6 x 6 x 3 m / 20 x 20 x 10 ft. The set-up of this self-contained BR CENTER is easy and fast thanks to the interlocking modular supporting structures and curved Barco screen.

Thanks to proprietary incorporated geometry distortion, Barco’s LCD and DLP™ projectors deliver one smooth multi-channel, high-resolution image on any curved-screen set-up.
The Barco I-SPACE™ is a multi-sided cubic immersive environment in which one is completely surrounded by virtual imagery. The I-SPACE™ can consist of 3, 4, 5, or 6 walls, according to the system’s requirements. Thanks to the use of rear-projection technology and the flawless image continuity in the corners, the illusion of a complete sense of presence in the virtual environment is created. In addition, the system is fully compatible with most commercially available tracking devices.

Barco can design the I-SPACE™ fully customized to the client’s specific demands. It can be a fixed or transportable installation with rigid or flexible screens, and with active or passive stereo or both.

### Screen
- rigid
- flexible

### Stereo
- active
- passive
- both

### Structure
- fixed
- transportable

**I-SPACE™ 6, IAO’s Hypi6**

Barco was the world’s first to create an active/passive six-sided I-SPACE™. The 12 state-of-the-art Barco Reality 909 projectors are equipped with motorized polarizing systems allowing the user to switch from active to passive stereo by simply pressing a button.

**Transportable I-SPACE™4**

The lightweight structure of the Transportable I-SPACE™4 ensures mobility, easy assembly and disassembly. The I-SPACE™4 functions with different information platforms.

A fine-tuned and tracking-friendly aluminum construction is fixed onto the main wooden support structure. Its door opens and closes automatically. Many integrated safety features assure the highest level of security and ergonomics.
**Projection Tables**

**BARON**
This graphics projection table is equipped with the innovative BarcoReality 908 projector and a specially designed DAB (Diffuse and Bright) screen. Its superior image quality and its compact, modular design make it the product of choice for graphics, simulation and 3D applications. The motorized screen enables adjustment of its angle (from 0° to 90°) and height read-out. Screen: 1357 x 1020 mm / 4.45 x 3.35ft.

**CONSUL**
The Consul incorporates the characteristics of Barco’s Baron and further enhances it into a **dual-screen, L-shaped** projection table. Its innovative design increases the stereoscopic effect and display area. The Consul is extremely compact and has a small footprint, thanks to Barco’s advanced engineering and distinctive highly integrated projection technology. Two screens of 1800 x 1350 mm / 5.9 x 4.42ft.

**VIRTUAL SURGERY TABLE**
Incorporating a revolutionary design that utilizes two projectors inside its compact structure, the **virtual surgery table** is a unique multi-user projection table that combines active and passive stereo technologies. This specialized display system enables viewers to work simultaneously and independently, from either side of the table.

### Users Mode Proj.1 Proj.2

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<tr>
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**Dedicated V&AR Projectors**

**CRT**
Barco’s CRT projectors offer a high dynamic range, displaying detail from bright highlight areas to dark shadow areas. Barco manufactures mono and active stereo CRT projectors with fast-phosphor green tubes at sizes of 7”, 8”, 9” and 12”, offering a full range of light output and resolution as well as excellent color fidelity and contrast ratio.

**LCD**
Barco’s LCD Light-Valve projectors offer extremely high light output. The highly efficient passive stereo optimized versions maintain about 70% of the original light output. They are available for both linear and circular polarization and can be combined with the Duet active-to-passive stereo convertor.

**DLP™**
Barco’s multi-channel capable stereo-optimized Galaxy displays active stereo at SXGA resolution up to 110 Hz. The Galaxy Warp™ version is equipped with built-in geometry distortion for active stereo projection on any type of curved screen. For passive stereo, Barco offers a range of DLP™ projectors with light output from 5,000 to 18,000 ANSI lumens.

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