



# 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.

**BARCO**

innovators in image processing

# 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.



*The Wall Street Journal Conference at the Conrad Hotel in Brussels*

### 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**.



visit Barco's stereoscopic projection pages on <http://www.vr.barco.com>

## 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.

Setup	Channels	Stereo	• Rigid or • Flexible Screen
• front	• single	• none	• flat
• rear	• multi*	• active	• cylindrical curved
		• passive linear	• spherical curved
		• passive circular	• conical curved

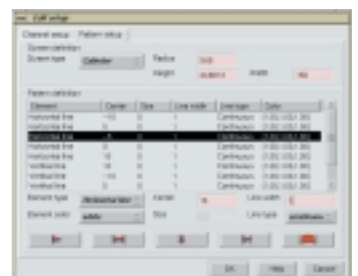
\* blending optimized

## 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



# CADWALL™

Photo courtesy of ItalDesign, Italy

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.

Barco's two-channel Odyssey  
(Photo courtesy of ICEM)



Barco's MICA or MINI CADWALL

## 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 converter**. 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.

## Customized CADWALL™

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



Transportable CADWALL.  
(Photo courtesy of Schlumberger GeoQuest)

## 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.

# MoVE™

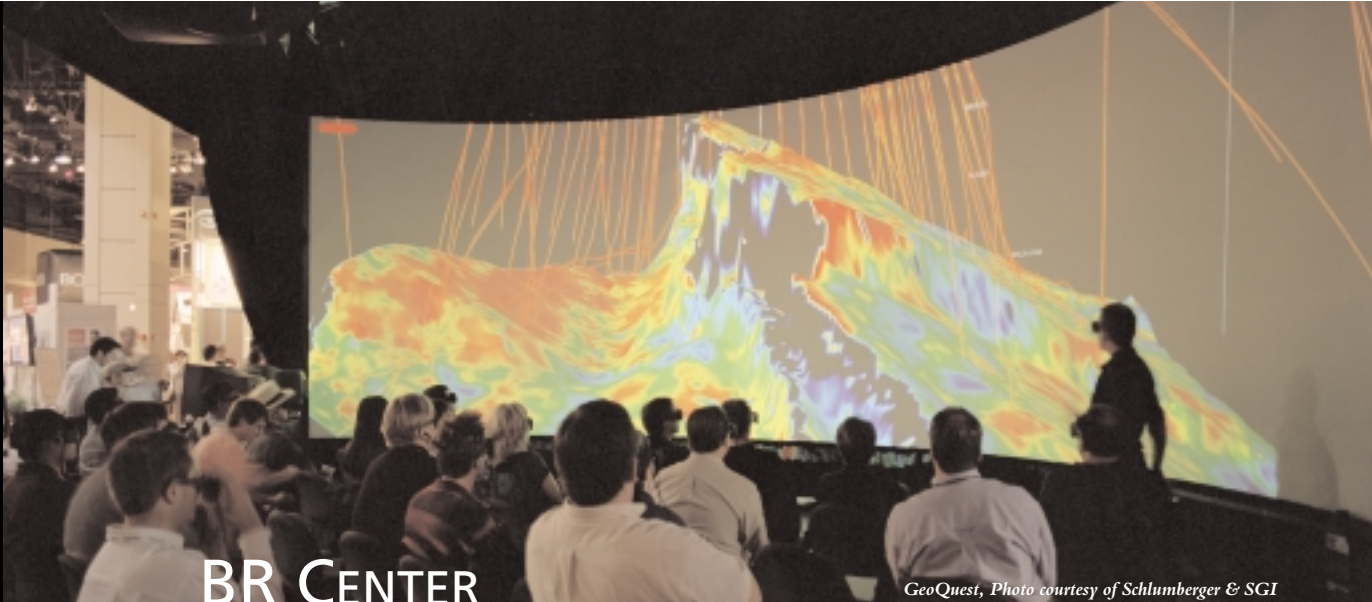
With its smart and robust modular design, the BARCO MoVE™ is a multi-purpose Virtual Environment. This all-in-one solution enables straightforward, accurate and fast reconfiguration of the system into a CADWALL™, an I-SPACE™ sandwich configuration, or any position in between.



The Barco MoVE™ in CADWALL™ configuration.

## 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.



## BR CENTER

GeoQuest, Photo courtesy of Schlumberger & SGI

Delivered with a cylindrical, conical, or spherical screen configuration the BR CENTER provides an extensive field of view. Using Barco's advanced blending and geometrical distortion technology, a realistic immersive viewing experience is achieved.

### Customized BR CENTER

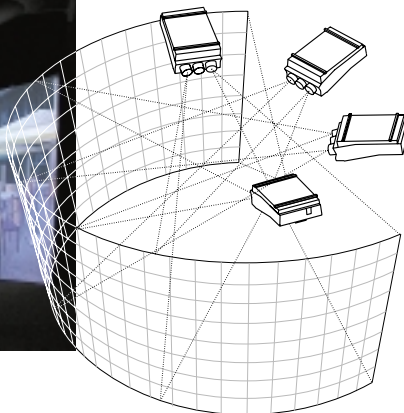
Configured for a permanent installation in an existing infrastructure, it can be designed according to the requirements and budget of practically any organization.



The Transportable BR CENTER



I-CONE™, GMD, GERMANY

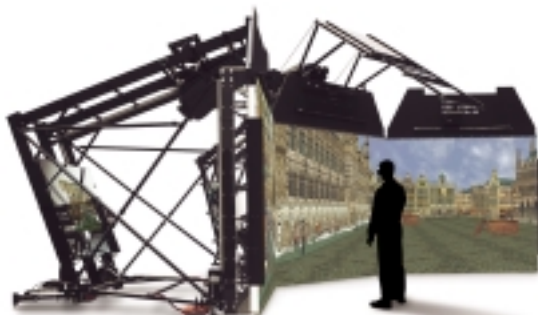


### Transportable BR CENTER

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.*



Barco's MoVE™ in an Immersive Theatre configuration with an angle of 45° (Photo courtesy of de pinxi)

### 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**.



Photo courtesy of Fraunhofer IAO, Germany

The Barco I-SPACE™ is a multi-sided cubic immersive environment in which one is completely surrounded by virtual imagery.

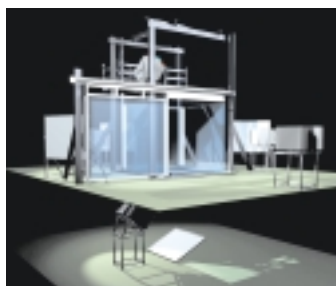
The I-SPACE™ can consist of 3, 4, 5, or 6 walls, according to the system's requirements. Thanks to the use of rear-projection technology and the flawless image continuity in the corners, the illusion of a complete sense of presence in the virtual environment is created. In addition, the system is fully 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	<input type="radio"/> rigid	<input type="radio"/> flexible	
Stereo	<input type="radio"/> active	<input type="radio"/> passive	<input type="radio"/> both
Structure	<input type="radio"/> fixed	<input type="radio"/> 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 BARCOREALITY 909 projectors are equipped with motorized polarizing systems allowing the user to **switch from active to passive stereo** by simply pressing a button.



The Transportable I-SPACE™ 4,  
(photo courtesy of Dassault Systemes Group)

## Transportable I-SPACE™ 4

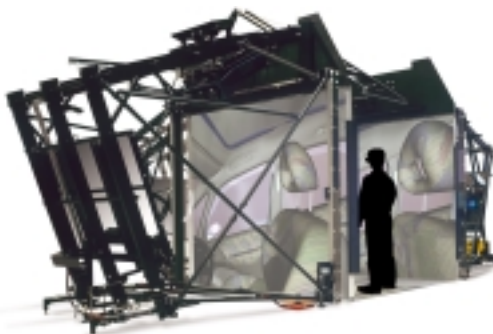
The lightweight structure of the Transportable I-SPACE™ 4 ensures mobility, easy assembly and disassembly.

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.

## I-SPACE™ Configuration

Offers a fully immersive experience for a **single viewer** or a **small group of viewers**. A special Barco feature is the possibility to reconfigure the MoVE™ into a **sandwich configuration**.



The Barco MoVE™  
in I-SPACE configuration.

# 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
1	active	image A	image B
1	passive	left	right
2	active	viewer A	viewer B



# 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**.



BARCOREALITY 909

## 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.



BARCOREALITY SIM 6

## 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**.



BARCO GALAXY

## BARCO Simulation Products

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BARCO Projection Systems is an ISO 9001 registered company.

The information and data given are typical for the equipment described. However any individual item is subject to change without any notice.

**BARCO**