TEAM - 115 - 2018

Bogotá D.C. 19 de Noviembre del 2018

**Señores**
**SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO**
**Atn. Dr. JOSÉ LUIS SALAZAR LÓPEZ**
**DIRECTOR DE NUEVAS CREACIONES**

*Asunto: Respuesta Requerimiento de Fondo Oficio N° 11785, del Expediente N° NC2017/0003231- Patente de Modelo de Utilidad – SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV*

Atento saludo,

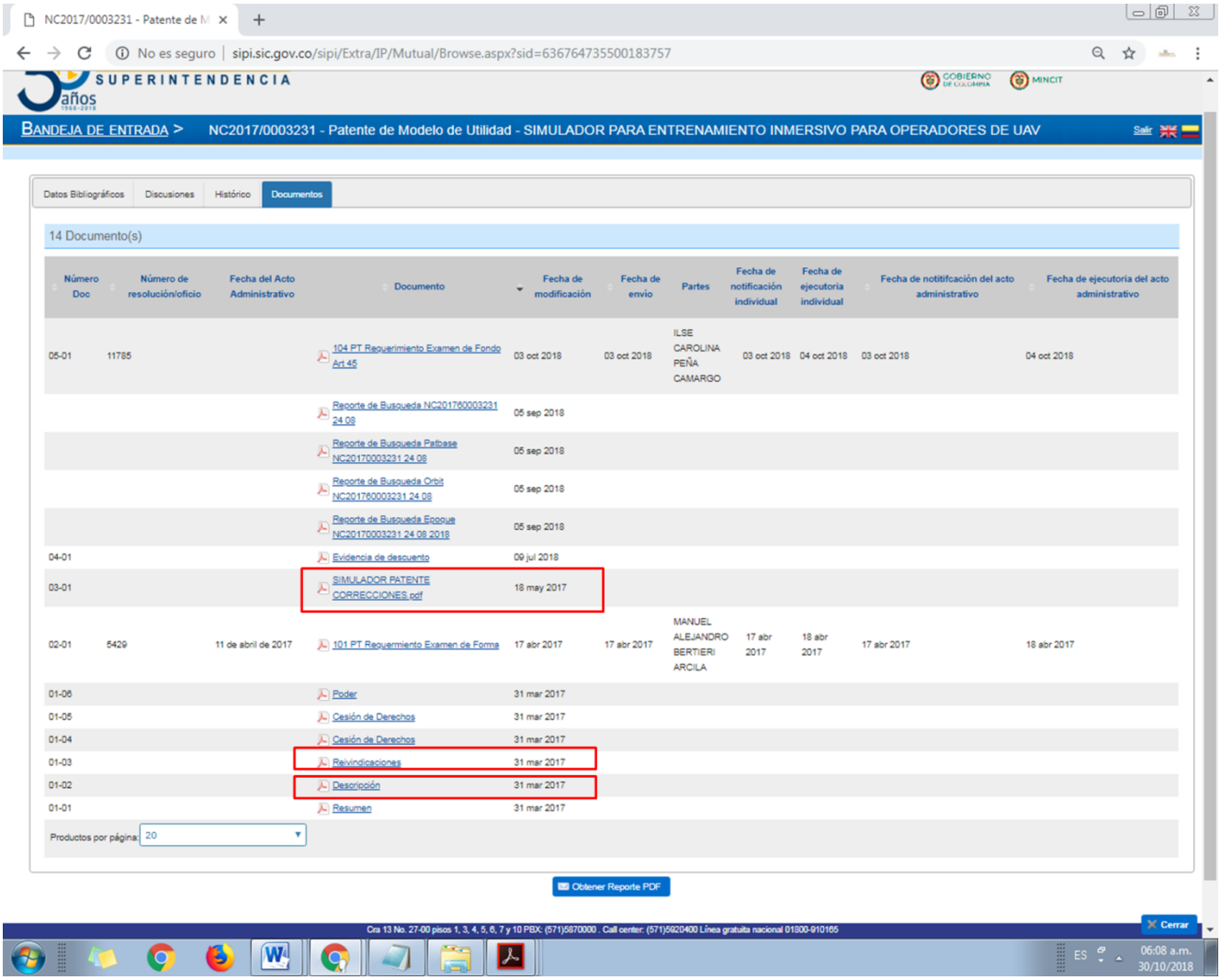
En mi condición de apoderada de la empresa ADVECTOR S.A.S. NIT 900.072.284-8 y actuando como abogada de la empresa TEAM Ingeniería de Conocimiento Ltda, doy respuesta al oficio relacionado en el asunto, según como sigue en el presente documento. Con lo anterior se da cumplimiento al artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina específicamente en lo relacionado con el cumplimiento de los plazos estipulados para ello.

**1. Documentos estudiados**

El requerimiento de fondo No. 11785, cita como documentos estudiados la siguiente relación.

- Descripción NC2017/0003231 31 de marzo de 2017
- Reivindicaciones: NC2017/0003231 31 de marzo de 2017
- Reivindicaciones: NC2017/0003231 18 de mayo de 2017
- Dibujos: NC2017/0003231 31 de marzo de 2017
- Respuesta del solicitante: NC2017/0003231 18 de mayo de 2017

De acuerdo con la información disponible en el Sistema de Propiedad Industrial de la Superintendencia de Industria y Comercio SIPI – SIC al 30 de Octubre de 2018, se observa la siguiente correspondencia:




Por lo anterior, con relación a la lista de documentos estudiados se encuentra correspondencia a tres archivos digitales en formato pdf, identificados con números de documento 01-02, 01-03 y 03 -01, que corresponden a los nombres: Descripción, Reivindicaciones y SIMULADOR PATENTES CORRECCIONES respectivamente. Los documentos 01-02 y 01-03 se subieron a la plataforma el día 31 de Marzo de 2017, mientras que el documento 03-01 se subió a la plataforma el día 18 de Mayo de 2017.

Es pertinente manifestar que a fecha del 25 de Abril de 2018, la Dirección de Nuevas Creaciones acepta el cambio de poder tramitado bajo el radicado número IT2018/0003779, en razón por la cual a partir de esta fecha, actúo como abogada apoderada en el presente proceso.

**2. Modificaciones presentadas (Art. 34 D 486 y Art. 19, 22 y 34 PCT)**

Conforme a la aceptación de las modificaciones presentadas por parte de la Superintendencia de Industria y Comercio, se entiende que las reivindicaciones y texto conjunto del trámite de patente corresponden a la información presentada el día 18 de Mayo de 2018. Dichas modificaciones fueron entregadas en el documento SIMULADOR PATENTE CORRECCIONES.pdf identificado con el número de documento 03-01 en el SIPI-SIC.

**3. Objeto de la invención**

Respecto de la Clasificación Internacional de Patentes, se reciben a conformidad las clasificaciones **G09B 9/00** - Simuladores para la enseñanza o el entrenamiento y **G09B 9/24** - que comprende la presentación o el registro de la trayectoria de vuelo simulado.

Las clasificaciones **G09B 9/10** y **G09B 9/42**, se objetan, por las siguientes razones:

- **G09B 9/10 - con medios de simulación de las fuerzas generadas por el vuelo o por los motores sobre el ocupante de la aeronave**

  El campo técnico en el cual se inscribe la invención bajo estudio, no trata de aeronaves tripuladas. Por lo cual no existe "*ocupante de la aeronave*", ni fuerzas generadas por el vuelo o por los motores sobre el ocupante de la aeronave. Como se detalla posteriormente en este documento, la invención se circunscribe a la simulación de vuelo de aeronaves NO tripuladas y operadas a distancia.

- **G09B 9/42 - Aeronaves, simuladores de aeronaves o medios que les son conectados, desplazándose sobre el suelo o sobre el agua durante el entrenamiento de vuelo simulado**

  El campo técnico en el cual se inscribe la invención bajo estudio, no trata de "*simuladores de aeronaves*". La simulación a la cual se refiere la presente invención, trata del vuelo u operación de aeronaves NO tripuladas. La invención bajo estudio no simula al vehículo aéreo NO tripulado (Unmanned Aerial Vehicle UAV) popularmente conocido como DRONE, dado que por sus características físicas y de volumen, no son tripulados.

**4. De la solicitud de patente**

Sobre las reivindicaciones se precisa:

- La *reivindicación 1* queda de acuerdo con el siguiente texto, sustituyendo la expresión "*programa informático*":

Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual, con una estructura poliédrica (1), para la representación de una vista del entorno del piloto en ambiente tipo inmersivo que integra información: a) del control de la aeronave, b) la estación en tierra y c) la estación de control del simulador; posee modelos dinámicos de aeronaves no tripuladas, escenarios y ambientes de realidad virtual, con condiciones de temperatura, viento, nubosidad, iluminación, humedad, precipitación y demás condiciones específicas del entrenamiento de vuelo no tripulado desde tierra; contiene señales procesadas y actualizadas; contiene datos de respuesta transferidos a la estación de control, la estación en tierra y los sistemas de proyección de video y audio envolvente.

- Se elimina la *reivindicación 7*, toda vez que la descripción detallada de la reivindicación 1 cubre la protección sobre la invención en estudio.

El texto final de las reivindicaciones no modifica la materia patentable, ni extiende el alcance de estas, por lo cual no se modifica la descripción técnica, no se modifica el alcance técnico ni se modifica la materia patentable. La descripción que se entrega, especifica la invención sin que por ello, esta se modifique.

El nuevo texto no implica la ampliación o modificación de la materia patentable, toda vez que la descripción de las actividades realizadas por el programa informático o soporte lógico, solamente detallada un componente ya existente de la invención.

Se entrega como anexo a la presente comunicación, el capítulo reivindicatorio final.

**5. Determinación del Estado de la Técnica**

Respecto del document Ítem D1 “Rear-projected dome display Welcome to the real world” se realizan las siguientes precisiones:

a. El enlace web citado en el requerimiento No. 11785 no arroja la información relacionada dentro de dicho requerimiento, a la fecha de consulta 29 de Octubre de 2018, se encontró el mensaje “404: Oops, Something Isn´t Right Here”, como se observa en los archivos adjuntos.

b. A fin de observar detalladamente la información del documento ítem D1, se buscó en el motor de internet Google el título del documento citado, encontrando el archivo que se adjunta a la presente respuesta de requerimiento de fondo.

c. Toda vez que el documento es un brochure de la organización BARCO, es claro que la información pertinente para el análisis del Estado de la Técnica es la contenida de las páginas 1 a la 8, dado que es en estas páginas donde se entrega información sobre simuladores de vuelo de aeronaves tripuladas. A partir de la página 9, el catálogo de productos relaciona otros productos de la organización, que no componen el simulador de vuelo citado. Adicionalmente, no es posible inferir que la totalidad de los elementos del catálogo hagan parte del simulador de vuelo para vehículos tripulados.

**6. Examen de Patentabilidad**

Con relación al documento “Rear-projected dome display Welcome to the real world” es pertinente advertir, de manera general, que el artefacto descrito en dicho documento está diseñado para el entrenamiento de pilotos, que se desempeñan comandando aviones tripulados. Las expresiones “pilots can gain experience that is crucial for life-critical night missions” y “simulation as well as systems for naval, air traffic control, vehicle and arms training”, claramente describen las actividades referidas a entrenamiento de navegación tripulada, como condiciones críticas de vida en navegación nocturna, sistemas navales, control de tráfico aéreo y manejo de armamento.

Como se advierte en el título de solicitud de la patente, la invención presente está diseñada para la aplicación exclusiva de vehículos aéreos NO tripulados (Unmanned Aerial Vehicle UAV), toda vez que el artefacto se compone de elementos físicos (hardware) y un sistema de comandos internos ejecutados a través de comandos informáticos que permite simular condiciones de vuelo especiales y específicas para UAVs. Esta distinción va más allá de la simple emisión de imágenes que pudieran ser comunes para ambos desarrollos, ya que, las condiciones de vuelo y manejo para un UAV no hacen parte del campo tecnológico de los vehículos tripulados. Es comprensible y evidente que la competencia técnica referida al vuelo, navegabilidad y pilotaje de UAVs es específica y particular; por lo cual, la invención descrita en la solicitud NC2017/0003231 no hace parte del estado de la técnica descrita en el documento “Rear-projected dome display Welcome to the real world”.

Entre otras razones, se expresan a continuación las consideraciones tecnológicas para sustentar que la descripción del *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV* no está incluida en el documento “Rear-projected dome display Welcome to the real world”:

a) A fin de precisar la delimitación de la tecnología en estudio, se cita la definición de UAV de Addati y Pérez (2014): “*El UAV (Unmanned Aerial Vehicle)…de uso civil es una aeronave a propulsión, no tripulada y reutilizable que opera mediante control a distancia y autónomamente*” (Disponible en: https://www.econstor.eu/handle/10419/130802). Dada la definición de UAV, es comprensible que las condiciones de no tripulación y operación a control a distancia de que trata la invención en estudio, la excluyen del ámbito tecnológico del aparato descrito en el documento “Rear-projected dome display Welcome to the real world”.

b) El “RP 360 Flight Simulator Dome” fabricado por Barco, es un simulador de vuelo para aeronaves tripuladas, principalmente de combate, en el cual se ubica al piloto en una silla en medio del domo, con la opción de girar la cabeza y ver lo que se encuentra detrás de él. Este simulador está diseñando para representar el entorno de un piloto sentado en la cabina de un avión es decir representa el movimiento del avión en el espacio.

c) El “Simulador para entrenamiento inmersivo para operadores de UAV” ubica al operador en un ambiente abierto, recreando condiciones de temperatura, viento, iluminación, precipitación, entre otras, que se encuentran en un escenario abierto o en campo. La representación visual, sonora y sensorial es completamente diferente por cuanto el piloto está parado en la tierra y no se mueve con la aeronave, es decir la aeronave se representa gráficamente como un objeto que se mueve en el escenario proyectado en el domo y el operador o piloto lo sigue con el movimiento de su cabeza o incluso de su cuerpo para no perderlo de vista, tal como ocurre en las condiciones reales.

De manera particular y específica para dar respuesta a la Tabla 1. Comparación de las características Esenciales con las del Estado de la Técnica, se entrega la Tabla A. Respuesta a Comparación de las características Esenciales con las del Estado de la Técnica, a continuación.

**Tabla A. Respuesta a Comparación de las características Esenciales con las del Estado de la Técnica**

| **Características Esenciales** | **D1** | **Respuesta** |
|---|---|---|
| Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual. | La pantalla domo trasera proyectada de Barco, la RP-360, crea un entorno de 360° para entrenamiento de vuelo. Este domo es una respuesta a la necesidad cada vez mayor de reducir costos de capacitación, al incorporar más tareas de capacitación a la capacitación en tierra. Esto ahora es posible gracias al nivel mejorado de realismo (Pág. 2, Párr. 1). | En las características esenciales es determinante la expresión “**aeronaves piloteadas a distancia**”, ya que las condiciones de entrenamiento para pilotos de aeronaves piloteadas a distancia son radicalmente diferentes a las condiciones de entrenamiento para pilotos de naves tripuladas. Es decir que la información del documento D1, no hace parte de las características esenciales de la invención.<br><br>En respuesta al numeral 4 del requerimiento de fondo No. 11785 y en respuesta al presente numeral del mismo requerimiento, se entrega una redacción final de reivindicaciones que especifica y detalla las características de navegación **a distancia** de las que se compone la invención *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV.*<br><br>Dichas características se han especificado en los documentos estudiados que se mencionan en el numeral 1 del requerimiento No. 11785, toda vez que son intrínsecas a la operación y entrenamiento de vuelo de aparatos UAV. |

| | | |
|---|---|---|
| Plataforma tipo domo (1). | Pantalla de domo retro proyectada bienvenido al mundo real (Pág. 1, Titulo) | Se remplaza la expresión "*domo*", por estructura poliédrica. Esta modificación es coincidente en la conformación geométrica y arquitectónica. |
| Con un componente de proyección (2) para la percepción del movimiento tridimensional de la plataforma (1), que comprende varias, en particular video proyectores (2) ajustables activamente en longitud y fijadas a través de articulaciones con grados de libertad a la plataforma (1) para enfocar en el domo (1). | Ya sea que esté en el sector de petróleo y gas, la industria automotriz, ingeniería virtual de investigación científica, Galaxy NW de Barco la serie hará que sus esfuerzos de colaboración sean más rápidos y eficientes, lo que permitirá una mejor toma de decisiones, gracias al XDS Suite de software Control Center. El XDS Control Center de Barco se ejecuta desde la computadora de su empresa dedicada que está conectada al proyector, y no requiere sistemas de gestión de visualización adicionales en caso de que utilice una **configuración de uno o dos proyectores (**Pág. 19, Párr. 1). | Se elimina de la reivindicación 1 información referida a proyectores.<br><br>En lo referido al software de control, se ha sustituido la expresión "*programa informático*" por las características específicas del simulador, de manera particular en lo referido a la simulación de vuelo de aeronaves No tripuladas. |
| Para la representación de una vista del entorno del piloto del vehículo en ambiente tipo inmersivo. | El RP-360 ofrece la calidad de imagen más precisa en el mercado hoy en día. Con menos proyectores, el sistema logra resultados superiores, MTBF largo, un campo de visión realista optimizado, detección realista de objetivos terrestres y terrestres, reconocimiento e identificación, contraste de pantalla mejorado y escenarios avanzados para el entrenamiento nocturno y diurno (Pág. 2, Párr. 2). | Es claro que la reivindicación 1 desde el inicio de su enunciado especifica que el ambiente inmersivo se suscribe explícitamente al entrenamiento de vehículos aéreos **no** tripulados (UAV) y es también claro por la reivindicación 1, que las características del simulador como unidad inventiva exceden la simple calidad visual. Es claro, por las explicaciones introducidas en este documento, que la información del documento D1 no incluye la descripción de la invención a proteger bajo el registro No. NC2017/0003231.<br><br>De igual manera, al observar la unidad patentable en el conjunto de reivindicaciones, se hace énfasis en que se describen componentes de audio, humedad, precipitación y otras condiciones de vuelo no tripulado. De manera que, la descripción de la invención excede las características del aparato Barco descrito en el documento D1 y por lo mismo no hace parte del Estado de la Técnica.<br><br>Es fundamental exponer que el ambiente inmersivo, dada la técnica no tripulada, requiere elementos específicos del campo abierto, como el sonido, la sensación térmica, la precipitación, la |

| | | |
|---|---|---|
| | | iluminación y otras condiciones ambientales. Dichas condiciones deben actuar conjuntamente con información de la aeronave al ser tripulada, los modelos dinámicos, los comandos, la información de la estación en tierra; a fin de recrear y simular con alto grado de precisión, condiciones reales a las que se somete un piloto de UAV.<br><br>Todo lo anterior está descrito en el capítulo reivindicatorio, en su texto final. Con lo cual es evidente que la expresión "*ambiente inmersivo*" en el contexto tecnológico de los UAV no se restringe a las mejoras en la calidad de imagen, sino que requieren el tratamiento sincrónico de condiciones ambientales y de operación. |
| Con al menos un componente de programa informático de cálculo de situaciones de tipo real y eventuales que se presentan en campo. | La cartera de Barco para el mercado de salas de control consiste en equipos de visualización, controladores y software. Al unir estos componentes en conceptos totales, los usuarios descubren el verdadero poder de nuestros productos. El resultado: intercambio de información más fácil, más rápido comunicación y rendimiento óptimo de las salas de control (Pág. 30, Párr. 1). | Como se ha mencionado anteriormente, los comandos desarrollados por el *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV* están suscritos específicamente para entrenamiento de vehículos aéreos no tripulados, mientras que la información referida en el documento D1 corresponde a salas de control de vehículos tripulados; por lo tanto no son materia equivalente ni similar.<br><br>En este caso se refiere a salas de control. En una sala de control se monitorean imágenes y vídeo (normalmente para seguridad y defensa) o información de sensores para el monitoreo de plantas industriales. Ninguno de los anteriores tiene relación o con el simulador de UAVs.<br><br>Son dos campos de la técnica diferentes, particulares y explícitamente opuestos.<br><br>Así mismo, en el capítulo reivindicatorio se han detallado las características específicas de la invención, las cuales no están incluidas en el campo técnico de las "*salas de control*". |

A continuación, y como conclusión de la tabla anterior, se entrega el texto definitivo de la reivindicación 1

***Reivindicación 1:*** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual, con una estructura poliédrica (1), para la representación de una vista del entorno del piloto en ambiente tipo inmersivo que integra información: a) del control de la aeronave, b) la estación en tierra y c) la estación de control del simulador; posee modelos dinámicos de aeronaves no tripuladas, escenarios y ambientes de realidad virtual, con condiciones de temperatura, viento, nubosidad, iluminación, humedad, precipitación y demás condiciones específicas del entrenamiento de vuelo no tripulado desde tierra; contiene señales procesadas y actualizadas; contiene datos de respuesta transferidos a la estación de control, la estación en tierra y los sistemas de proyección de video y audio envolvente.

Respecto de los ítems del numeral relacionados con las reivindicaciones dependientes:

- *Reivindicación 2.*

Como se ha entregado en los documentos estudiados, la Figura 2 muestra una estructura, que de acuerdo a la reivindicación 2 se encuentra forrada con una pantalla de superficie lisa sobre la cual se proyecta el video de la simulación, sin que se observen estructuras de soporte. Mientras que en la figura del aparato Barco los tetraedros son externos al domo, no hacen parte de la conformación del domo. A continuación se presentan las imágenes comparadas, para mayor entendimiento de que la información del documento D1, no divulga la invención objeto de estudio.

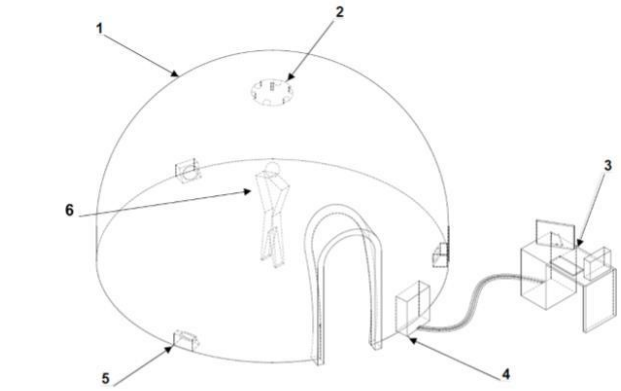
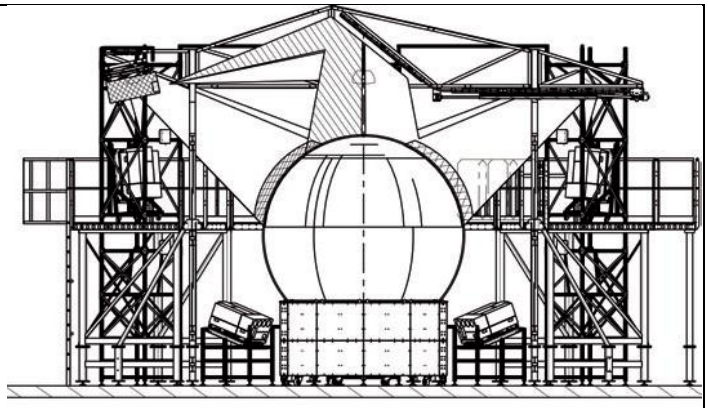



Figura 2. *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV*



Vista aparato Barco. Tomado del documento D1.

Ahora bien, de acuerdo con lo anterior, el texto final de la reivindicación 2 la expresión "*estructura de tetraedros"* se elimina, quedando de la siguiente manera:

***Reivindicación 2:*** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 caracterizado porque comprende una estructura poliédrica forrada con una pantalla de superficie lisa sobre la cual se proyecta el video de la simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

Se entrega como anexo al presente documento, el texto final del título "*Descripción Detallada*" del documento *SIMULADOR PATENTE CORRECCIONES* (Documento mencionado en el numeral 4 del requerimiento 11785). Así mismo, se informa que el elemento (1) de la Figura 2, es un dibujo indicativo de una estructura poliédrica.

- *Reivindicaciones 3, 4, 5 y 6*

Como se ha manifestado en el numeral 5 de la presente respuesta, las características y configuraciones de los productos que se encuentran descritos en el catálogo del documento D1 no pueden entenderse como parte constitutiva del simulador de vuelo de vehículos tripulados. De manera que las características de los proyectores, pantallas o software como productos independientes, no hacen parte del campo técnico bajo estudio. Es decir, las características de un videoproyector, de un sistema de operación de tráfico, vigilancia-comando-control, aisladamente no guardan proporción técnica con el conjunto de elementos físicos, mecánicos y comandos de acción con que cuenta el *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV,* los cuales se han descrito y aclarado en la presente respuesta; así mismo se encuentran en los documentos estudiados en el requerimiento de fondo No. 11785.

Las objeciones presentadas a las reivindicaciones 3, 4, 5 y 6, recaen sobre características independientes de productos excluídos del sistema Barco. Por ejemplo, la expresión "*La excelente calidad de imagen, gracias a la tecnología DLP de tres chips y una brillante salida de luz de 12,000 lúmenes (Galaxy NW-12) o 7,000 lúmenes (Galaxy NW-7), solo se combina con su facilidad de uso y flexibilidad: en un escritorio familiar de Windows, puede visualizar cualquier mezcla de fuentes estéreo 2D y 3D. La serie Galaxy NW es la elección definitiva para cualquier colaboración configuración de pantalla de uno o varios proyectores. Los proyectores rinden su sistema de visualización más estable, más duradera y, sobre todo, ofrece una calidad de imagen superior*", hace referencia, claramente a sistemas de proyección y de equipos de cómputo de escritorio. Lo cual, no tiene relación alguna con el objeto patentable de la solicitud No. NC2017/0003231.

Es además necesario considerar que la reivindicación 1, dota a sus reivindicaciones dependientes de las características particulares de la simulación de vuelo de aeronaves NO tripuladas, con ello, es claro que cada una de las características sirve a ese propósito esencial.

A continuación se presenta el texto final de las reivindicaciones 3, 4, 5 y 6; toda vez que la reivindicación 1 que emana las características esenciales posee un nuevo texto.

**Reivindicación 3:** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un componente de proyección y acondicionamiento inmersivo (2) compuesto por un sistema de video proyectores ajustables y un sistema de recreación de condiciones de temperatura, viento, nubosidad, iluminación, humedad, precipitación y condiciones de vuelo para entrenamiento de pilotos de aeronaves piloteadas a distancia.

**Reivindicación 4:** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un componente de audio que está compuesto por varios parlantes (5) distribuidos de tal manera que se obtenga un sonido envolvente sincronizado con el componente de proyección (2) y video de la simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

**Reivindicación 5:** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un dispositivo de control compuesto por Radio Control (6) y estación de operación (3) en tierra, que contiene la interfaz de dirección y comando de un entrenamiento de pilotos de aeronaves piloteadas a distancia

**Reivindicación 6:** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un Motor de Simulación (4) que integra audio y video con modelos dinámicos de aeronaves no tripuladas, emitiendo señales de simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

El texto final de las reivindicaciones no modifica la materia patentable, ni extiende el alcance de estas, por lo cual no se modifica la descripción técnica, no se modifica el alcance técnico ni se modifica la materia patentable. La descripción que se entrega, especifica la invención sin que por ello, esta se modifique.

Se entrega como anexo a la presente comunicación, el capítulo reivindicatorio final

Como se ha mostrado en esta respuesta la materia patentable descrita en el *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV,* no hace parte del Estado de la Técnica descrita en el documento "Rear-projected dome display Welcome to the real world", ítem documental D1.

**7. Conclusión**

Toda vez que la invención *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV:*

a. Cumple con requisitos de patentabilidad de acuerdo con el Artículo 14 de la Decisión 486 de la Comisión de la Comunidad Andina, dado que: es nueva y tiene aplicación industrial.
b. No se encuentra comprendida en el estado de la técnica, según el artículo 16 de la Decisión 486 de la Comisión de la Comunidad Andina
c. Es un modelo de utilidad toda vez que es una "*nueva forma, configuración o disposición de elementos, de algún artefacto, herramienta, instrumento, mecanismo u otro objeto o de alguna parte del mismo, que permita un mejor o diferente funcionamiento, utilización o fabricación del objeto que le incorpore o que le proporcione alguna utilidad, ventaja o efecto técnico que antes no tenía*", según el artículo 81 de la Decisión 486 de la Comisión de la Comunidad Andina

Se solicita dar continuidad al trámite y conceder la patente de modelo de utilidad.

**ANEXOS**

1. Capítulo reivindicatorio
2. Descripción detallada
3. Documento D1a
4. Documento D1b
5. Documento D1c

Agradeciendo su amable atención,



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C.C. 52.885.182 expedida en Bogotá D.C. - T.P. No. 140630 del C. S. de la J.
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Preparación de la respuesta técnica

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Ingeniera Mecánica - Ms. Educación
c.c. 52.898.263 de Bogotá
Consultora - Rep. Legal TEAM Ingeniería de Conocimiento Ltda.

**ADVECTOR S.A.S.**

# ANEXO 1

**CAPÍTULO REIVINDICATORIO**

1. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual, con una estructura poliédrica (1), para la representación de una vista del entorno del piloto en ambiente tipo inmersivo que integra información: a) del control de la aeronave, b) la estación en tierra y c) la estación de control del simulador; posee modelos dinámicos de aeronaves no tripuladas, escenarios y ambientes de realidad virtual, con condiciones de temperatura, viento, nubosidad, iluminación, humedad, precipitación y demás condiciones específicas del entrenamiento de vuelo no tripulado desde tierra; contiene señales procesadas y actualizadas; contiene datos de respuesta transferidos a la estación de control, la estación en tierra y los sistemas de proyección de video y audio envolvente.

2. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 caracterizado porque comprende una estructura poliédrica forrada con una pantalla de superficie lisa sobre la cual se proyecta el video de la simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

3. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un componente de proyección y acondicionamiento inmersivo (2) compuesto por un sistema de video proyectores ajustables y un sistema de recreación de condiciones de temperatura, viento, nubosidad, iluminación, humedad, precipitación y condiciones de vuelo para entrenamiento de pilotos de aeronaves piloteadas a distancia.

4. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un componente de audio que está compuesto por varios parlantes (5) distribuidos de tal manera que se obtenga un sonido envolvente sincronizado con el componente de proyección (2) y video de la simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

5. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un dispositivo de control compuesto por Radio Control (6) y estación de operación (3) en tierra, que contiene la interfaz de dirección y comando de un entrenamiento de pilotos de aeronaves piloteadas a distancia.

6. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un Motor de Simulación (4) que integra audio y video con modelos dinámicos de aeronaves no tripuladas, emitiendo señales de simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

# ANEXO 2

**DESCRIPCIÓN DETALLADA:**

La invención propuesta, plantea el diseño de un aparato de simulación envolvente, principalmente está compuesto por parámetros e información parametrizada permitiendo nutrir y proveer de un alto grado de fidelidad de las condiciones en vuelo y de comportamiento de equipos. Así representando escenarios, situaciones, respuestas del equipo a los controles o comandos por el control manual (radiocontrol). Interpreta los comandos y/o señales emitidas desde el radio control y la estación de tierra. Permitiendo el entrenamiento en situaciones normales y anormales.

Compuesta por una Estación de Operación mediante la cual el instructor coordina el entrenamiento con el piloto, controla el motor de simulación para iniciar los escenarios, situaciones y eventos del entrenamiento y evalúa el desempeño del estudiante. A través de la estación de control el instructor puede también tomar funciones de Controlador de Vuelo en situaciones en las cuales se simula un espacio de tráfico aéreo controlado, generar situaciones anormales y de emergencia. La Estación de Operación está conectada a un Motor de Simulación donde se genera el ambiente virtual. Al Motor de Simulación también se encuentran conectados el radio control y la estación en tierra desde donde el estudiante programa y controla el vuelo de la aeronave, así como los Componentes de Proyección y Audio.

Se compone de una estructura poliédrica (1), que está forrada con una pantalla de superficie lisa sobre la cual se proyecta el video de la simulación. Posee un componente de proyección (2) un componente de audio y acondicionamiento inmersivo, está compuesto por varios parlantes (5) distribuidos de tal manera que se obtenga un sonido envolvente sincronizado con la simulación para hacerla lo más real posible. Uno o dos personas (6), (piloto y operador de la estación en tierra) se ubican la estructura poliédrica con el Radio Control y la estación de tierra desde donde efectúan la operación de la aeronave en el ambiente simulado. La aeronave vuela alrededor de ellos siguiendo los comandos del piloto y operador de la Estación en Tierra y las situaciones de la simulación.

Las señales viajan desde el Radio Control y la Estación en Tierra hasta el Motor de Simulación (4), diseñado para emular los distintos escenarios y con base en parámetros tomados en campo. Cuenta con un componente de ventilación para brindar refrigeración, asegurándose un flujo de aire adecuado. El motor de simulación va conectado a su vez a la Estación de Operación (3), en la cual se encuentra la interfaz para dirigir todo el simulador.

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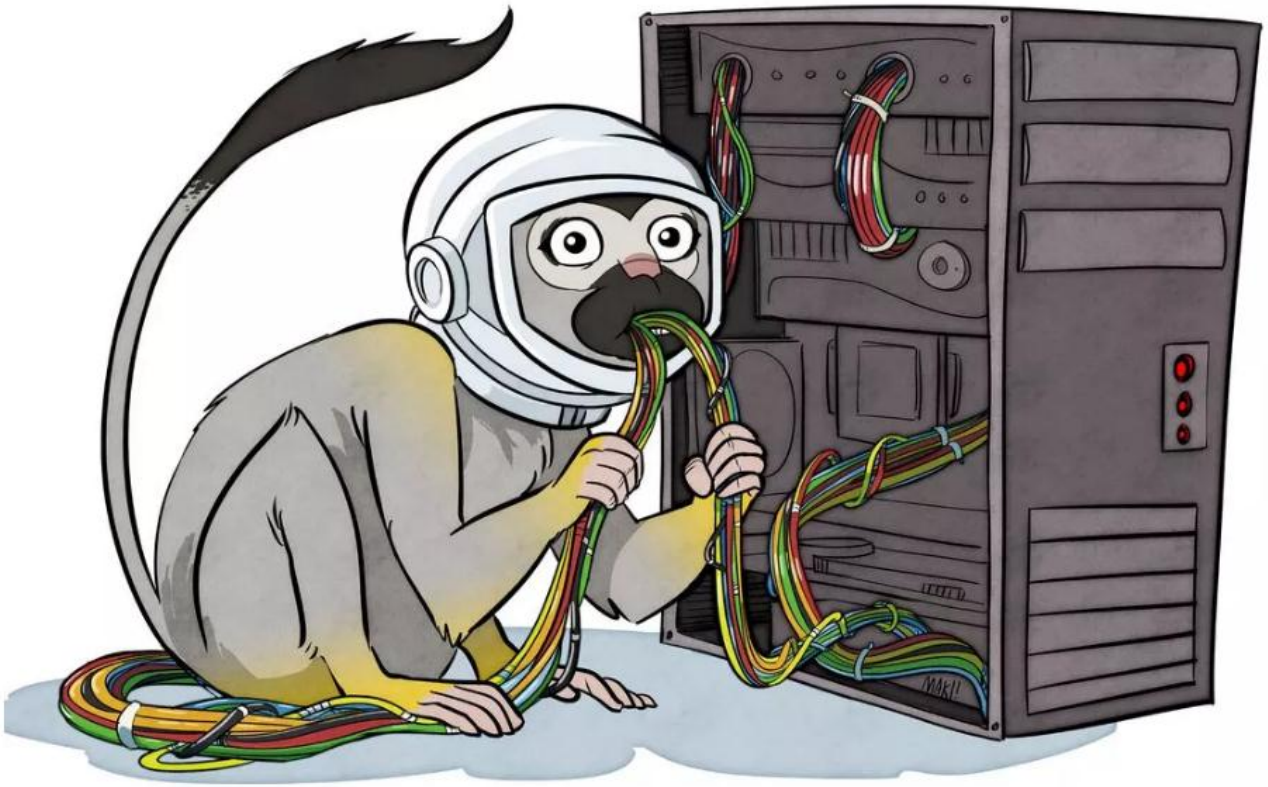
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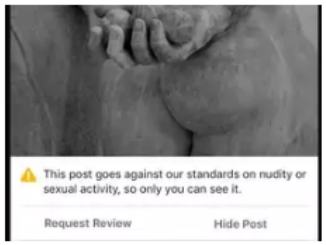

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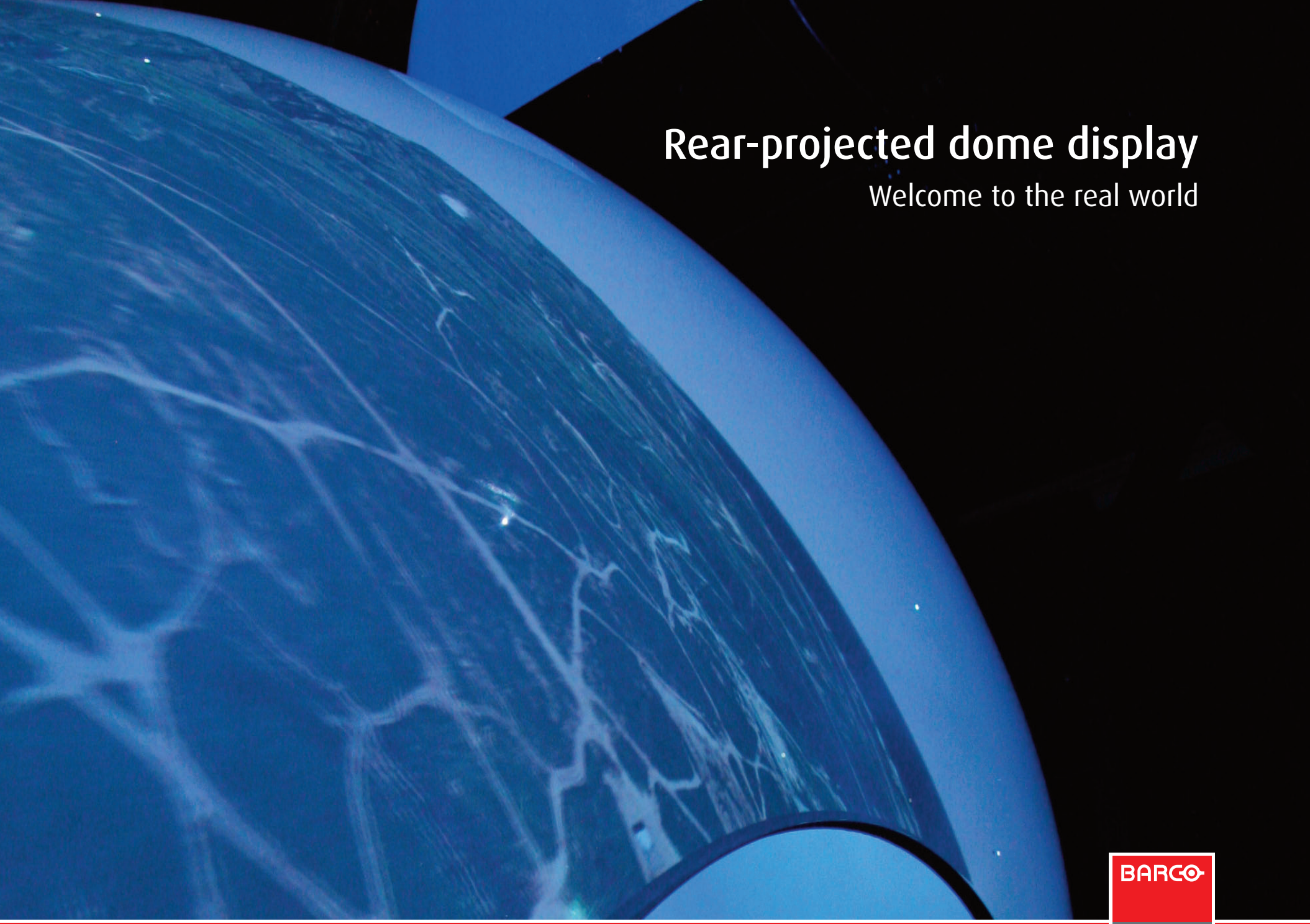
*By Jillian Mock*



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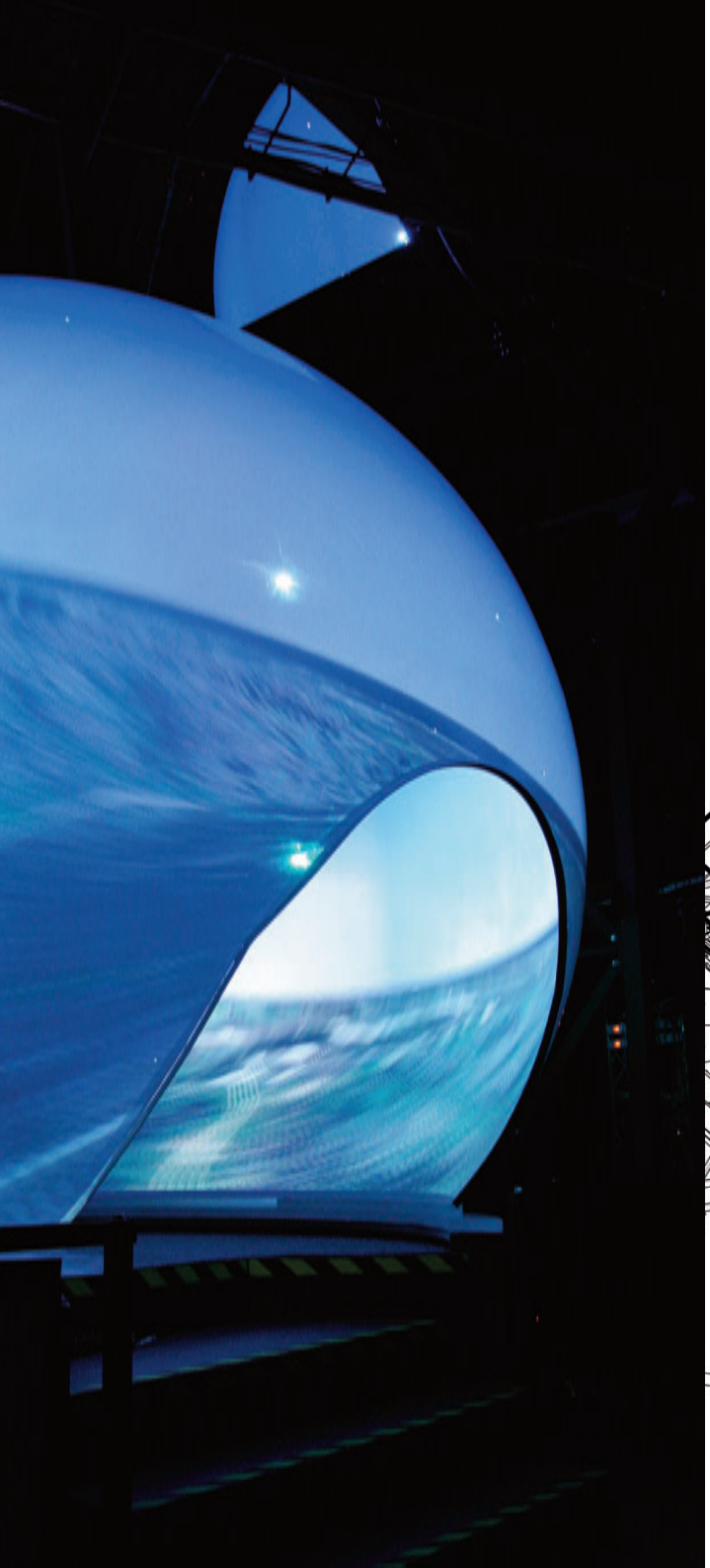


# Rear-projected dome display

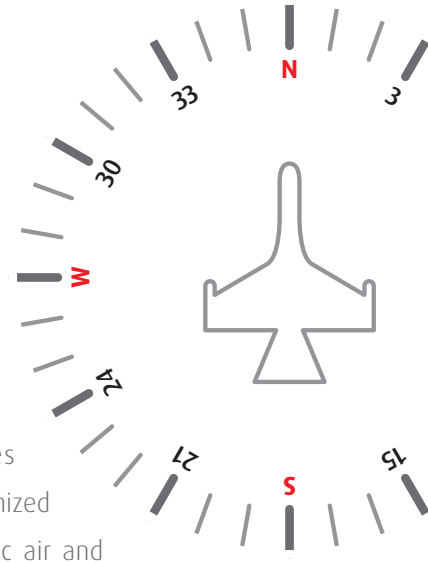
## Welcome to the real world

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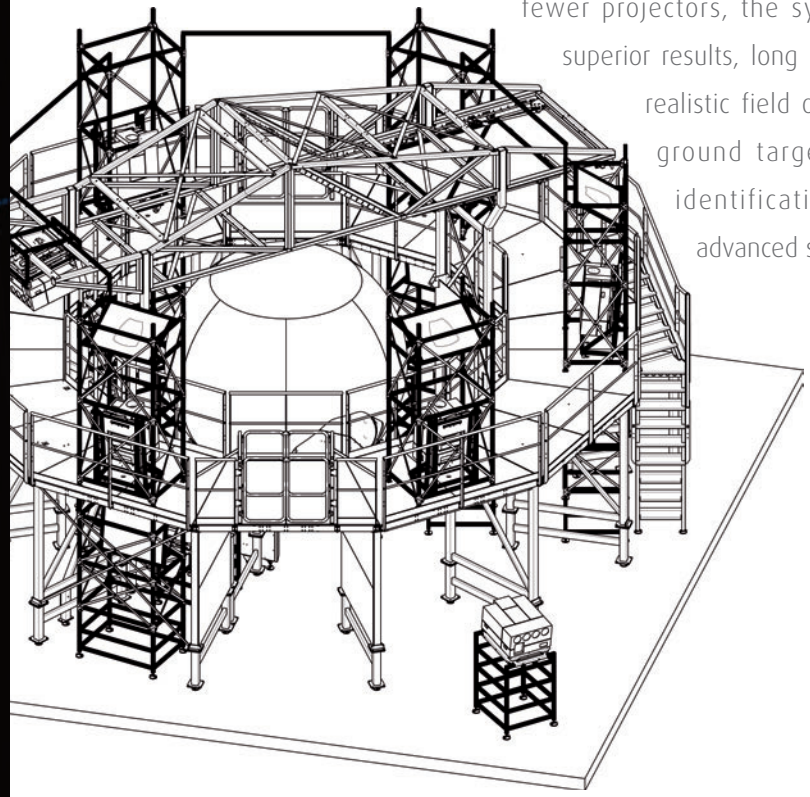


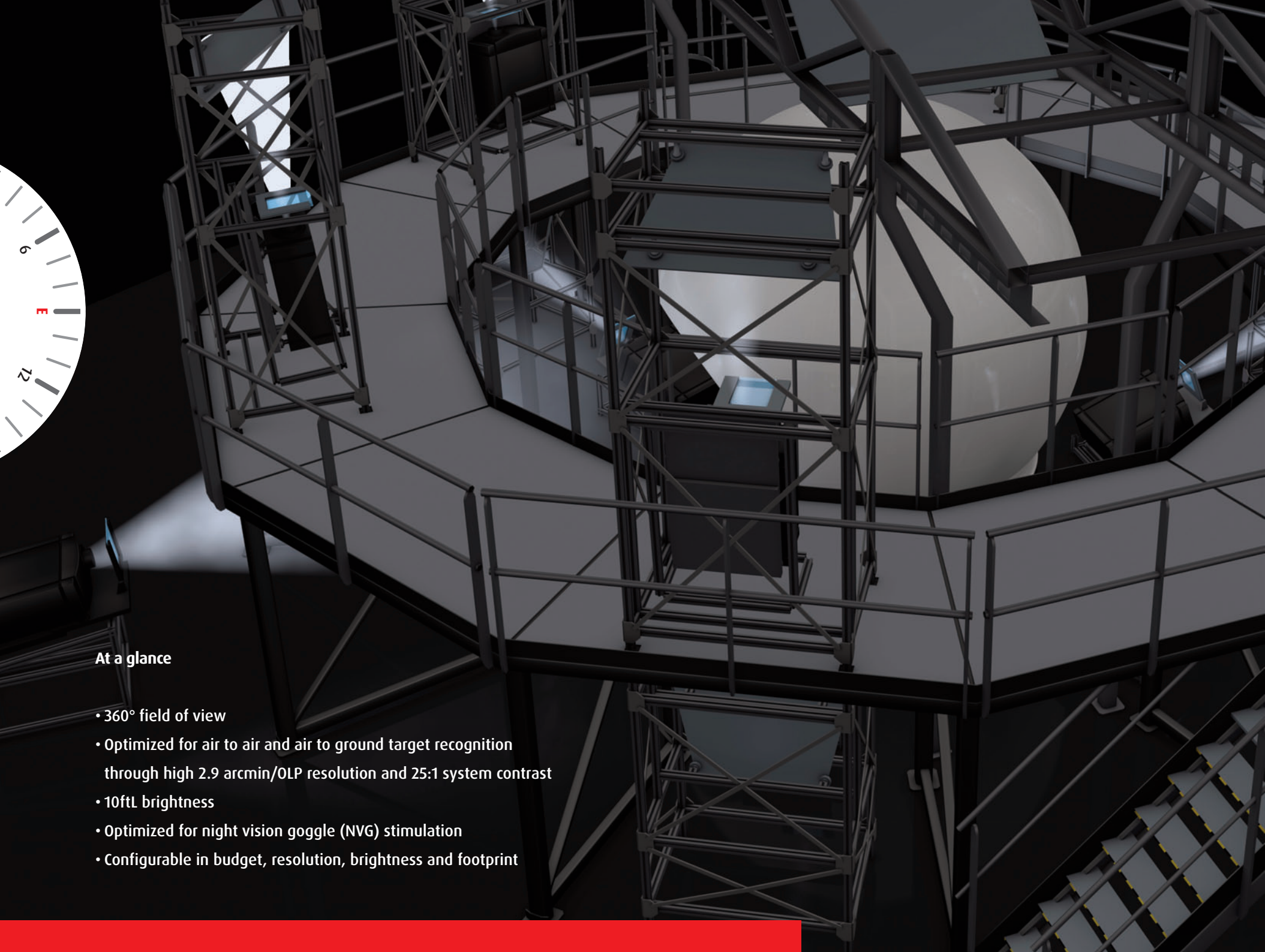
# Rear-projected dome display




Barco's rear-projected dome display – the RP-360 – creates a **360° environment** for flight training. This dome is a response to the ever-growing **need to reduce training costs**, by bringing more training tasks to ground-based training systems. This is now possible thanks to the improved level of realism.

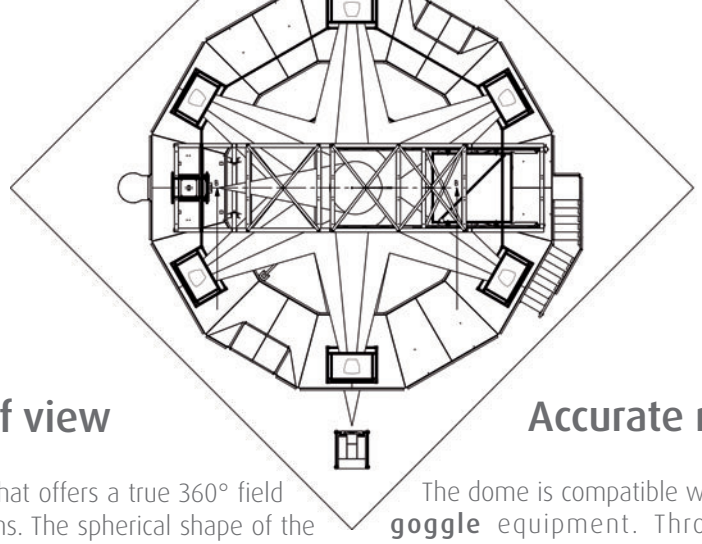
The RP-360 offers the most accurate image quality on the market today. With fewer projectors, the system achieves superior results, long MTBF, an optimized realistic field of view, realistic air and ground target detection, recognition and identification, improved display contrast and advanced scenarios for both night and day training.





**At a glance**

- 360° field of view
- Optimized for air to air and air to ground target recognition through high 2.9 arcmin/OLP resolution and 25:1 system contrast
- 10ftL brightness
- Optimized for night vision goggle (NVG) stimulation
- Configurable in budget, resolution, brightness and footprint

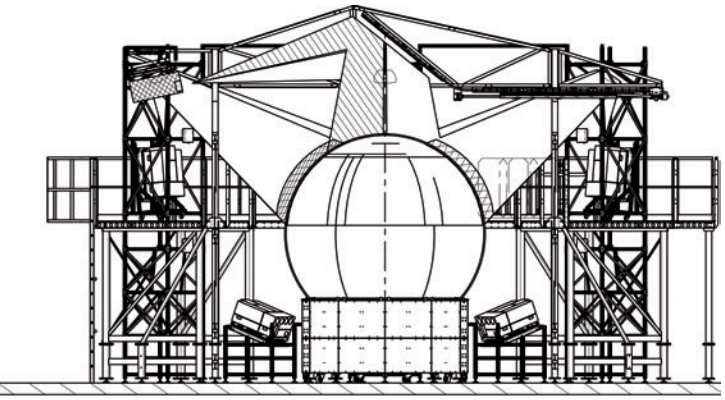


## A real field of view

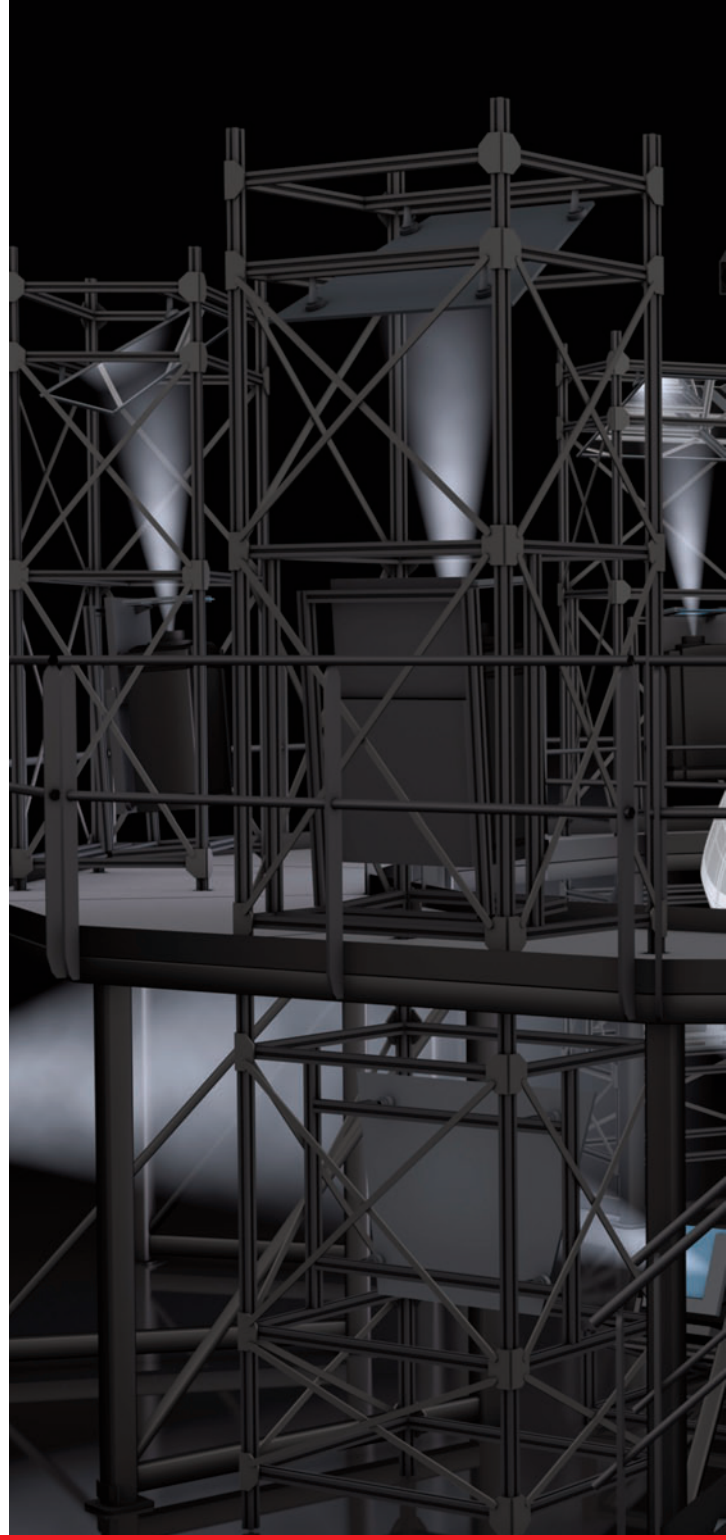
Imagine a simulator that offers a true 360° field of view in all directions. The spherical shape of the screen with the pilot in the center point, creates a pervasive sense of realism and offers constant **eye relief and free head movement**. Because only rear-projection is used, there is no shadow or light disturbance.The assembled, all-spherical screen shows no segments or seams.

## Accurate night training

The dome is compatible with actual **night vision goggle** equipment. Through several visual optimizations, the system displays halo and bloom effects with extreme realism. One of these optimizations is the projectors' increased infrared (IIR) spectrum. In this way, pilots can gain experience that is crucial for life-critical night missions.

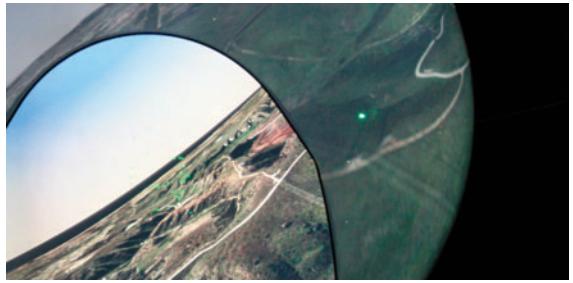






## Real DORI

DORI (Detection, Orientation, Recognition and Identification) requirements are vital to the effectiveness of any simulation system. With the RP-360 dome, pilots can keep track of **fast-moving targets all the time** thanks to the large field of view and visual optimizations such as high system contrast and the smearing reduction technology in the LCoS-based SIM 10 and SIM 7 projectors. The dome handles high-speed imagery effortlessly and offers detailed **2.9 arcmin/OLP** precision. This is extremely close to eye-limiting resolution.





XDS-RACU



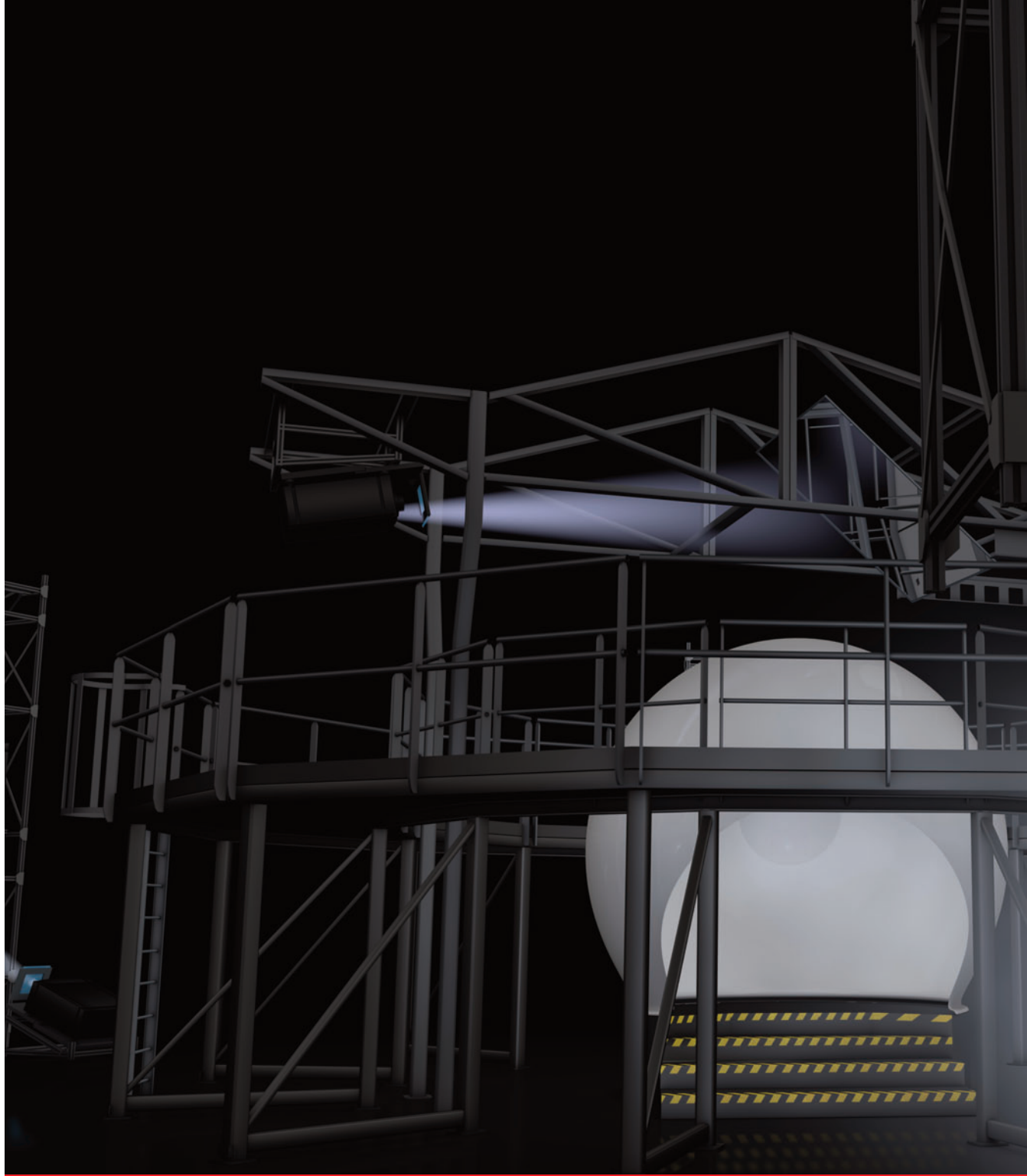
Acuras

## Real uptime

Barco's RP-360 dome was **designed with service and a maximum uptime in mind**. In case a projector needs to be swapped, training can continue in less than one hour. Barco's laser diode array trackers (LDAT) indicate the right spot for the projection to be mapped. Barco has also developed an **entire set of alignment tools** (including the Acuras system and the XDS-RACU controller) that make system setups easier, quicker and repeatable with predictable results. In addition, Barco's global service teams ensure fast intervention and efficient, professional assistance.



Projectors can be rolled in and out easily for quick part replacements.





## Drastically reduced training costs

To reduce the real flying training cost without jeopardizing the training skills, simulators that allow true-to-life flying conditions are required. Thanks to the improved performance of its visual system, Barco's RP-360 is able to offer these realistic training possibilities. What's more, these superior results are established using fewer projectors than previously thought possible.

### The right technology

The standard projector that drives Barco's RP-360 is a **native 10 megapixel projector** with liquid crystal on silicon (LCoS) technology, the SIM 10. For more compact setups, we also offer the SIM 7 projector. Both feature the following **dedicated technologies** for multi-channel setups:

- **Smearing reduction:** handles fast-moving imagery effortlessly
- **Night vision goggle support**
- **Linked constant light output:** brightness equalization across channels, important for TCO and maintenance
- **DynaColor:** automatic color calibration across channels
- **Edge blending:** creates one seamless composite image
- **Warping:** precise geometry correction for curved surfaces



Native 10 megapixel projector for simulation



SIM 7

### The setup to suit your needs

Barco's RP-360 system comes in several standard configurations:
- 19ft high, with 13 or 14 SIM 10 or SIM 7 projectors
- 14ft high, with 13 or 14 SIM 10 or SIM 7 projectors

# Proven technology

Barco's RP-360 is designed from the ground up with Barco technology. In-house developed, powerful design tools allow us to accurately predict the system's ideal setup and performance, and feedback from the field allows us to improve the design tools and processes each time. The dome's entire mechanical structure, projection and screen technology are all Barco-designed, and the screens have a special coating that increases its overall image quality.





Barco's solutions are not limited to large dome setups alone. Its product range and installed base of systems includes compact SEER mini-domes for flight training, collimated displays for dual-cockpit simulation as well as systems for naval, air traffic control, vehicle and arms training.

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# SIM 7 series

## High-resolution simulation projectors with no speed limits

Now also available
with enhanced brightness




- FAA certified (level D)
- Optimized for multi-channel visualization
- Smear-free operation
- Advanced, zero frame delay warping
- Extended contrast for accurate night/dusk training
- Motion-base simulator compatible
- Stimulated NVG capability (not available on HB models)
- Enabled for automated alignment

Barco's SIM 7 series projectors push the envelope of visualization technology to provide extremely realistic simulation. Equipped with the industry's latest and fastest switching LCoS (Liquid Crystal on Silicon) technology, the SIM 7 series delivers nothing less than razor sharp, no-smear images for high-speed motion and other simulation applications.

The Barco SIM 7 series consists of the SIM 7Q (standard) and the SIM 7Q HB (with high brightness levels). This projector range is optimized for multi-channel visualization to provide exceptional contrast, QXGA (2048x1536) resolution, unmatched dynamic range, seamless image blending, and outstanding performance. Specially developed to meet the real-world demands of commercial and military flight training and mission rehearsal scenarios, the Barco SIM 7 series can be easily integrated into simulation systems with spherical, curved, or flat projection surfaces. If your training applications require visual simulation that is highly realistic, the Barco SIM 7 series give you the best image quality known today, with no speed limits.

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# Barco's SIM 7 doesn't sacrifice speed for realism - it has both

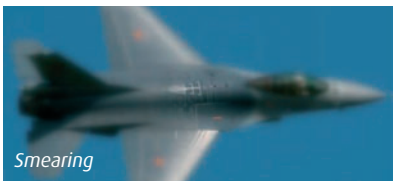
## Optimized for high-resolution, multi-channel visualization

The SIM 7 comes equipped with various Barco engineered technologies that make it ideal for multi-channel simulation projection:

- **Optical and electronic edge blending** eliminate overlap zones where projections converge, to create one seamless image.
- **Linked constant light output** (CLO) guarantees the same brightness levels for the entire composite image.
- **DynaColor** and **gray level definition** ensure accurate color matching and gradient color definitions across the multi-channel system.
- **Warping** enables correct, undistorted projection without frame delay and loss of pixels on a curved or spherical screen.

## True smear-free operation

Its truly unique smear reduction technology allows Barco to provide high-quality smear reduced images, without any impact on the contrast ratio or the dynamic range.


*Smearing*

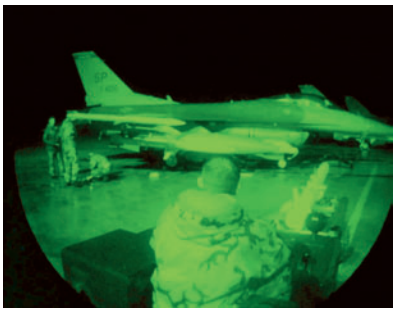

*No smearing*

## High contrast, deep black levels

Barco's contrast-enhancing features in the SIM 7 make it possible to simulate **true black levels** and attain levels of color gradience as close to a real-life experience as possible. The SIM 7's dynamic contrast ratio can be enhanced to up to 6,000,000:1, which is offered by no other competitor in the industry.

## Stimulated NVG capability

As today's combat scenarios take place during night, having pilots fully trained to fly under these conditions is necessary for survival. Barco's night vision goggles (NVG) optimization lets you use the SIM 7Q projectors for true, **realistic NVG stimulation** with ultra realistic blooming and halo night vision effects. This technology is compatible with any current generation of NVGs.



## Motion simulator compatibility

The Barco SIM 7 can be equipped with a motion-base compatibility option, and it is ruggedized to withstand the high G-forces of motion vibration.

## Enabled for automated alignment

Quickly and easily setup your multi-channel SIM 7 display system with Barco's advanced automated alignment system and remote display controller.

## Brightest LCoS simulation projector on the market

The SIM 7Q HB introduces a new brightness standard in simulators. Its stunning brightness level (typically 2,800 lumens) was designed specifically for use in environments where light output is a critical issue, and allows the projection of exceptionally realistic day-scenes. Unlike competing models, these brightness levels are in no way compromised by the projector's contrast enhancement functionality.

## SIM 7P series

All SIM 7 series projectors are also available in **portrait mode**, enabling a much higher vertical field of view compared to traditonal solutions.

| | SIM 7Q HB | SIM 7Q | SIM 7QP HB | SIM 7QP |
|---|---|---|---|---|
| Resolution | QXGA (2048x1536) | | 1536x2048 | |
| Brightness (lumens) | Typ. 2800 | Typ. 2000 | Typ. 2500 | Typ. 1800 |
| Aspect ratio | 4:3 | | 3:4 | |
| Contrast ratio | high dynamic contrast ratio up to 6,000,000:1 | | | |
| Warping | gen 3 WARP | | | |
| Latency | down to 3.5ms | | | |

M00154-R02-1111-DS November 2011

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Or mail to contact.bps@barco.com

# SIM 7 series

## High-resolution simulation projector with no speed limits




- Optimized for multi-channel visualization
- Smear-free operation
- Advanced, zero frame delay warping
- Extended contrast for accurate night/dusk training
- Motion-base simulator compatible
- **Enhanced**, stimulated NVG capability
- Enabled for automated alignment

Barco's SIM 7 series projectors push the envelope of visualization technology to provide extremely realistic simulation. The Barco SIM 7 series is equipped with the industry's latest and fastest switching LCoS (Liquid Crystal on Silicon) technology, which delivers nothing less than razor sharp, no-smear images for high-speed motion and other simulation applications.

The Barco SIM 7 series is optimized for multi-channel visualization to provide exceptional contrast, unmatched dynamic range, seamless image blending, and outstanding performance. Specially developed to meet the real-world demands of commercial and military flight training and mission rehearsal scenarios, the Barco SIM 7 series can be easily integrated into simulation systems with spherical, curved, or flat projection surfaces. If your training applications require visual simulation that is highly realistic, the Barco SIM 7 series give you the best image quality known today, with no speed limits.

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# Barco's SIM 7 doesn't sacrifice speed for realism - it has both

## Optimized for high-resolution, multi-channel visualization

The SIM 7 comes equipped with various Barco engineered technologies that make it ideal for multi-channel simulation projection:

- **Optical and electronic edge blending** eliminate overlap zones where projections converge, to create one seamless image.
- **Linked constant light output** (CLO) guarantees the same brightness levels for the entire composite image
- **DynaColor** and **gray level definition** ensure accurate color matching and gradient color definitions across the multi-channel system.
- **Warping** enables correct, undistorted projection without frame delay and loss of pixels on a curved or spherical screen.

## True smear-free operation

Thanks to Barco's display optmizations and the system's fast refresh rates, the SIM 7 produces high-quality images on par with CRT technology - but at a much lower price. This renders the SIM 7 the **next-generation projector of choice** for fast-jet training and other visually intensive simulation applications.


*Smearing*


*No smearing*

## High contrast, deep black levels

Barco's contrast-enhancing features in the SIM 7 make it possible to simulate **true black levels** and attain levels of color gradience as close to a real-life experience as possible. The SIM 7's dynamic contrast ratio can be enhanced to up to 6,000,000:1, which is offered by no other competitor in the industry.

## Stimulated NVG capability

As today's combat scenarios take place during night, having pilots fully trained to fly under these conditions is necessary for survival. Barco's night vision goggles (NVG) optimization lets you use the SIM 7 series projectors for true, **realistic NVG stimulation** with ultra realistic blooming and halo night vision effects. This technology is compatible with any current generation of NVGs.





## Motion simulator compatibility

The Barco SIM 7 can be equipped with a motion-base compatibility option, and it is ruggedized to withstand the high G-forces of motion vibration.

## Enabled for automated alignment

Quickly and easily setup your multi-channel SIM 7 display system with Barco's advanced automated alignment system and remote display controller.

## Increased infra-red spectrum

To stay as close to real-life situation as possible **during night training**, Barco's SIM 7 series **can be equipped** with an increased infra-red (IIR) option. This option assures a perfect balance between visible and infrared light, realistically matching that of real-world night circumstances. Consequently, night-sky illuminated objects with a certain visible luminance will have the correct associated IR luminance for NVG stimulation enhancing the sense of realism for a pilot training with today's state of the art NVGs.

| | SIM 7Q | SIM 7D | SIM 7QP | SIM 7DP |
|---|---|---|---|---|
| Resolution | QXGA (2048x1536) | | 1536x2048 | |
| Aspect ratio | 4:3 | | 3:4 | |
| Contrast ratio | high dynamic contrast ratio up to 6,000,000:1 | | | |
| Latency | down to 2ms | | | |
| Warping | gen 3 WARP | TwinWarp | gen 3 WARP | TwinWarp |

R990064 November 2009

DESIGNED UNDER ISO 9001

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sim 10__ 10/12/10 15:45 Pagina 1

# SIM 10

## 10 megapixel training and simulation projector



Barco's SIM 10 brings together the most forward-thinking technologies available in projection for training and simulation, to help achieve the most realistic image quality possible. The SIM 10 features a native 10 megapixel resolution, a dynamic contrast range of up to 10 million to one and a brightness of up to 6000 lumens.

### Down to the smallest detail

A native resolution of 4096x2400 pixels is a lot of pixels. Nearly 10 million, to be exact. And more pixels means more detail, which results in greater realism. As such SIM 10 is the best choice to build eye-limiting resolution systems. With the SIM 10 projector, pilots in training never miss an essential detail again.

### High-speed, high-quality imagery

In a fast-paced training scenario, it's essential to quickly identify ally or enemy. Barco's smearing reduction technology ensures that the SIM 10 can handle this intense imagery flawlessly, so that targets are immediately recognizable, even at great distances and moving at fast speeds. The SIM 10 smearing reduction allows it to simulate aircraft rolls previously impossible.

### Reduce your total cost of ownership

Barco's SIM 10 allows you to build high-performance simulators with significantly fewer projectors. It comes with 3-LCoS (liquid crystal on silicon) chips of Generation 2011 that have improved display performance and a significantly increased lifetime.

### Passing with flying colors

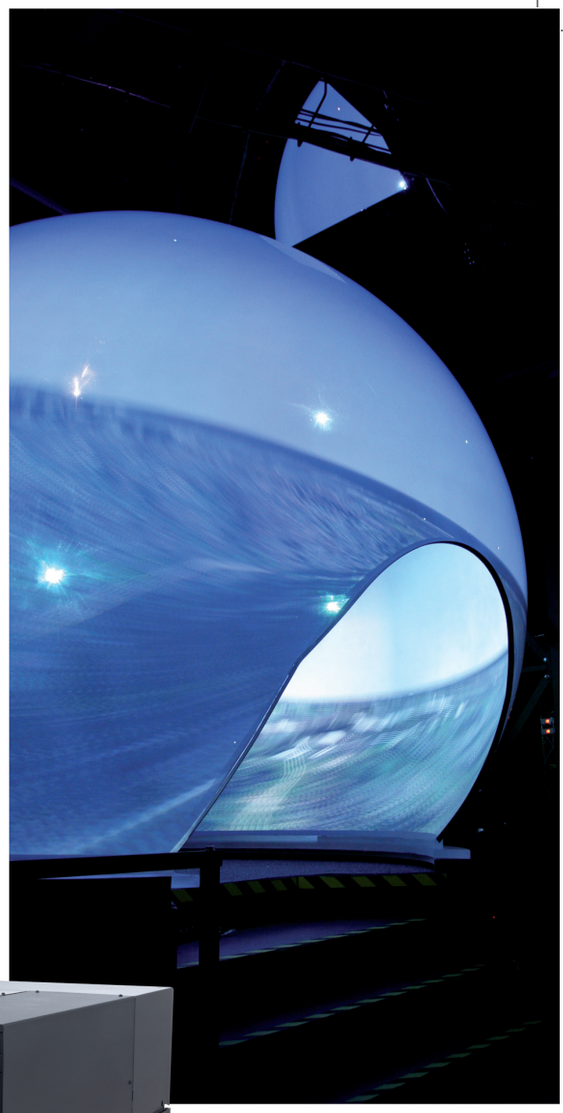
Barco's SIM 10 was designed specifically for training and simulation systems. When you use several projectors to create one image, it automatically equalizes color and brightness levels across the image – even when projectors or lamps are replaced. In this way, you have the same smooth image, free of disturbances, all the time.

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## Not alone in the dark

With a dynamic contrast ratio that can reach up to 10 million to 1 as well as an increased infra-red spectrum, the SIM 10 projector is ideal for simulated night and dusk training. It is completely compatible with all types night vision goggles, and produces realistic halo and blooming effects. This makes Barco's SIM 10 the best choice for all sorts of training needs for pilots – both day and night.

## The right curves

Many simulation environments use curved screens to more accurately render the feeling of being in a cockpit. The SIM 10 carries warping technology on board, which results in a geometrically correct image across any type of curved surface, without the need for separate third-party devices.

## Compatible with any type of simulator

Barco's SIM 10 can be made motion-base compatible, and can be deployed in flat faceted displays, collimated displays as well as front- and rear-projected curved screen displays. Due to its brightness, it is also the perfect choice for upgrades to large domes, or an increase of FtL in compact systems, which eliminates the need for a reading light.



| | SIM 10 |
|---|---|
| Resolution | 10 million pixels (4096x2400) |
| Brightness | up to 6,000 lumens |
| Contrast ratio | dynamic contrast up to 10,000,000:1 |
| Smearing reduction | 50% and 33% options |
| Geometry correction | full 10 million pixels generation 3 warp |

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**China:** +86 400 88 22726
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The latest version of this product sheet can be found on www.barco.com.
The standard product warranty is 1 year.

# Galaxy NW series

## WUXGA, network-centric, three-chip DLP, 3D stereo projectors



Barco's Galaxy NW series consists of the NW-7 and NW-12 active 3D stereo projectors with full WUXGA (1920x1200) resolution. The outstanding image quality, thanks to the three-chip DLP technology and a bright 12,000 lumens (Galaxy NW-12) or 7,000 lumens (Galaxy NW-7) light output, is matched only by their ease of use and flexibility: in a familiar Windows desktop, you can display any mix of 2D and 3D stereo sources. The Galaxy NW series is the definitive choice for any collaborative single- or multi-projector display setup. The projectors render your display system more stable, more durable and above all, offer superior image quality.

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# Pixel-perfect image quality

Thanks to the three-chip DLP technology, Barco's Galaxy NW series can claim deep, saturated color quality and a high degree of image realism. **WUXGA** resolution also gives you the chance to view all aspects of your information sources in great detail. In addition, WUXGA resolution is fully compatible with high-end laptops, or allows HD videoconferencing to run unobstructed by tickers, subtitles or your Windows task bar.

The Galaxy NW series' wide horizontal and vertical lens shift options further render it a perfect choice for both front and rear projection. The projectors' built-in geometry correction and blending feature are vastly superior to those of regular three-chip DLP systems, and help resulting in an **exceptional image quality**.

## Mastery of 3D stereo imaging

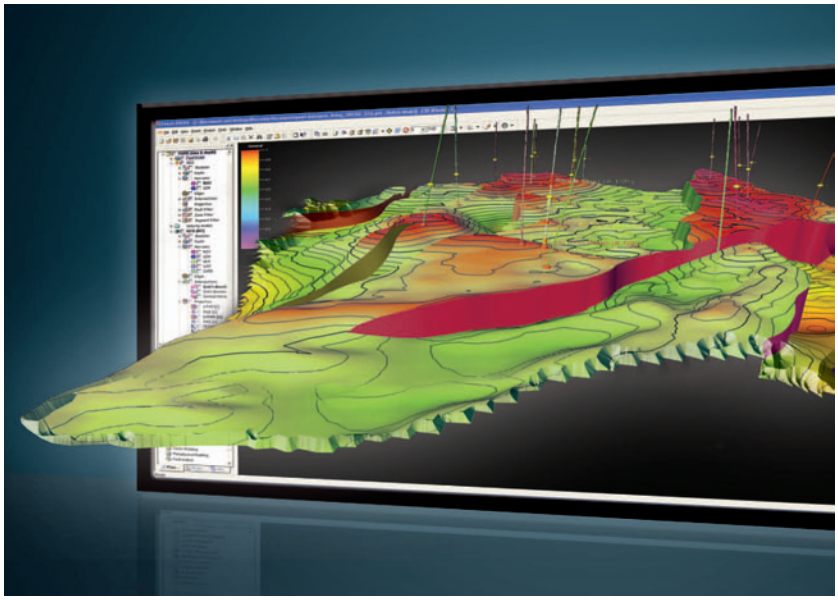
The Galaxy NW series' three-chip DLP platform is our customers' preferred platform for stereoscopic projection. The exact 3D rendering that Barco's Galaxy NW series offers is vital to applications such as **automotive design** review, analysis of large **geophysical** data sets, **scientific research** and many others. The Galaxy NW series supports any current type of stereoscopic technology, depending on the customer's wishes:

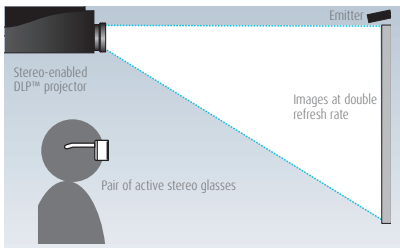
The NW-series can run in active stereo mode, using only one projector to generate both a left and right image simultaneous while retaining exceedingly high levels of color quality. By requiring only one projector per channel, a visualization system can attain a better cost-efficiency.

New in this projector range is the single-projector passive stereo support. The passive to active conversion of the NW-series merges two DVI input signals into a single active output, supporting both Infitec stereo glasses and active shutter glasses.

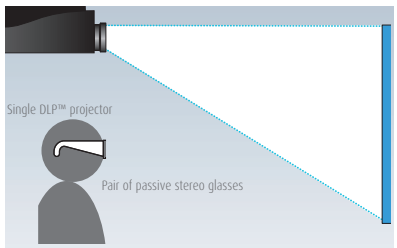
The NW series has integrated optional **active Infitec** filters. This Barco-patented stereo technology has uncompromised image quality, regardless of the type of screen you use. In addition, active Infitec makes use of considerably more affordable passive glasses.

The NW series also supports passive **polarized** stereo, if your visualization center is to be used by large groups. Passive stereo setups, where two projectors generate one stereo image, also retain high levels of brightness, which is ideal for larger rooms.

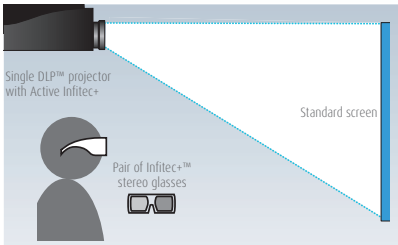




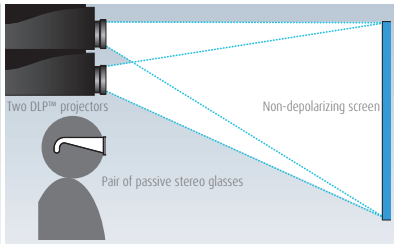

ACTIVE 3D STEREO




PASSIVE 3D (SINGLE PROJECTOR)




ACTIVE INFITEC 3D STEREO




PASSIVE POLARIZED 3D STEREO (TWO PROJECTORS)

# Reducing your total cost of ownership

The price of a projection system is more than just its purchase: servicing, maintenance, peripherals and learning curves should also be taken into account, and often add up to a much higher cost. Barco's Galaxy NW series greatly reduces the total cost of ownership on many levels:



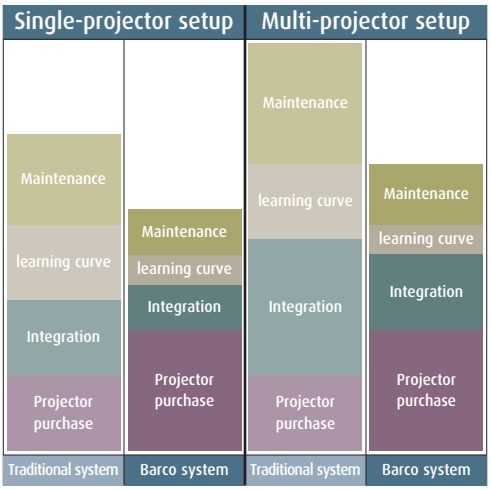
• **You save time,** because you don't need to learn how to work with a new interface and connect various sources over and over again. You simply use Windows and the XDS Control Center software.

• **You save money,** because you don't need to buy remote controls or matrix switchers. Instead, you use keyboard and mouse, and display sources simultaneously on one screen, in fully reconfigurable windows.

• **Reduce maintenance costs.** Your projection system is practically maintenance-free due to its sealed optical engine, and its centralized control and maintenance functionalities eliminate many manual check-up routines.

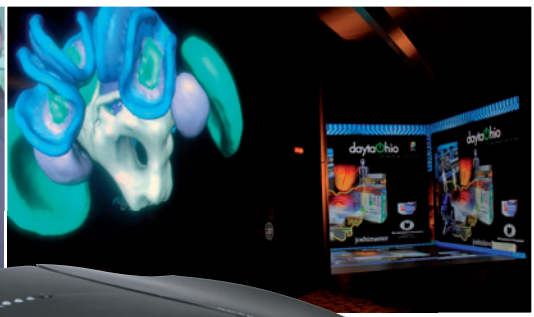
• **Improved reliability.** Thanks to its liquid cooling and its top-of-the-line xenon lamp, the Galaxy NW series boasts a significantly longer system lifetime compared to other three-chip DLP systems.

## Net TCO of a Barco system









# Applications

- Geophysical data analysis
- Avionic and automotive design and review
- Scientific research and data management
- Virtual construction and engineering

# Designed for multi-projector systems

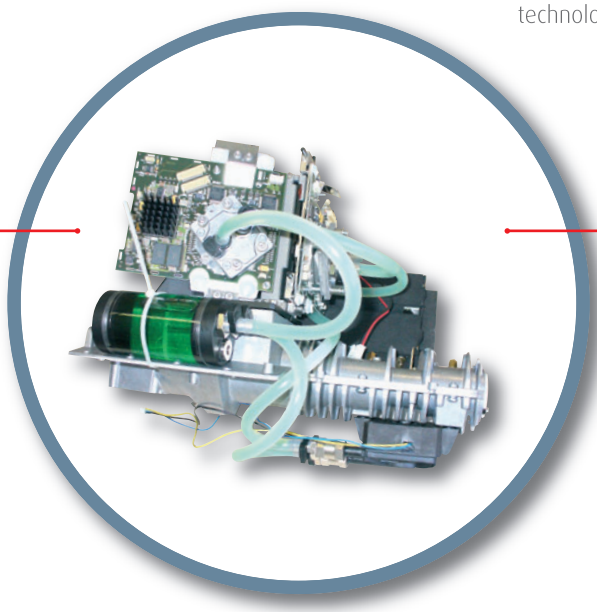





Barco's Galaxy NW series works just as smoothly in a single-projector setup as well as in a multi-projector system, in front as well as rear projection. Your systems will always have the **same look and feel**, thanks to Barco's XDS Control Center software, that lets you control several sources simultaneously in a familiar Windows user interface.

Combined with our own variety of **screen technologies** and **mechanical structures**, there is no type of system, whether flat or curved-screen, that the Galaxy NW series can't handle. To guarantee a pristine image at all times, Barco has equipped the Galaxy NW series with a number of innovative technologies:

- **Edge blending** technology creates one continuous image across the entire screen, without blurry overlap zones. Thanks to Barco's new **alpha and beta plane technology**, electronic blend zones will be close to invisible. In addition, Barco is the only company that has mastered perfect optical blending.
- **DynaColor** and **linked CLO** (constant light output) match color or brightness differences across channels to create one constant color and light output for the entire image. A unique advantage of Barco's **new and improved** DynaColor is that it uses alignment points for **both** primary and secondary colors, which puts it in pole position among comparable technologies.
- **Bi-cubical warping** (geometry correction) ensures that an image is projected correctly, with an extremely high level of accuracy (up to 33 by 33 control points), even across curved, non-flat surfaces, to guarantee a natural view free of distortions.



## Revolutionary design

The aesthetically designed Galaxy NW series uses a chassis designed to attain some of the **lowest noise levels in its class**, averaging well under 49dB. The **liquid-cooled** optical engine's reliability is further increased by being **fully sealed**, which means no dust can enter and cause degradation in contrast and black levels. Your image quality also remains stable over time, thanks to the NW series' rock solid lens holder. This grants the Galaxy NW series a system lifetime that is substantially longer than that of similar three-chip DLP systems, a platform already noted for its great reliability.

## The bottom line

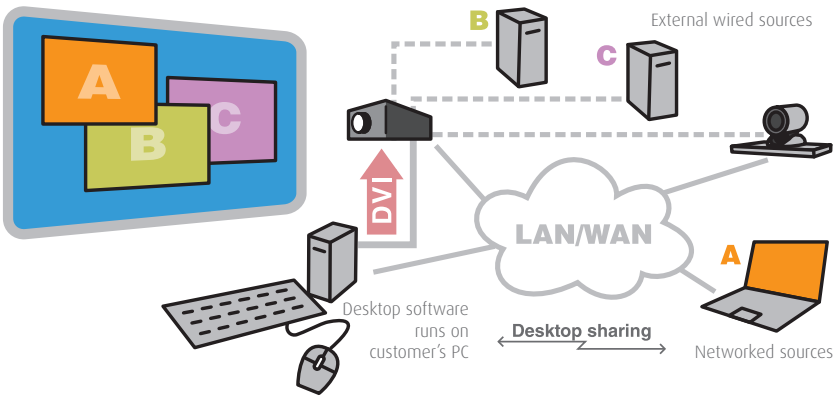
The Galaxy NW series' unique combination of liquid cooling, mechanical stability and improved multi-channel features lead to a very stable, reliable multi-projector display system unrivaled in the industry.

# Efficient collaboration, faster decision-making

Whether you are in the oil and gas sector, the automotive industry, virtual engineering of scientific research, Barco's Galaxy NW series will render your collaborative efforts faster and more efficient, leading to improved decision-making, thanks to the XDS Control Center software suite. Barco's XDS Control Center runs from your dedicated company computer that is connected to the projector, and requires **no additional display management systems in case you use a single- or a two-projector setup.**

## Familiar Windows interface

On a large-screen Windows desktop, you can **simultaneously view and control** any mix of 2D and 3D stereo sources. With just mouse and keyboard, you can select a source, move it, resize its application window or make it overlap with another source. This includes sources directly connected to the Galaxy NW projector as well as networked content and remote desktops.




## Real-time distance collaboration

With the Galaxy NW series, you can't just display any local or networked source, you can **directly take control** of it as well – all with the same mouse and keyboard. You can combine your sources with live video feeds or **HD videoconferencing**, so that you can strongly reduce travel costs, or work in a slow turn-based environment. Your content will not only be visible and shared between locations, it will also be encrypted and **safeguarded** against eavesdropping.

## Centralized control and diagnostics

The Galaxy NW series presents a great asset for your tech support staff, as it allows easy, centralized control and diagnostics over the network, including **remote startup and shutdown**. The Galaxy NW series enables your staff to check the projector's runtime, its lamp lifetime and the status of connected sources. It also sends **automated e-mail alerts** to your AV/IT-personnel in case of lamp problems.



# Galaxy NW series technical specifications

| | | |
|---|---|---|
| Display capabilities | **Light output** | |
| | 12,000 lumens(NW-12) ; 7,000 lumens (NW-7) | |
| | **Contrast** | |
| | up to 2,000:1 | |
| | **Resolution** | |
| | WUXGA (1,920x1,200) | |
| | **Chip technology** | |
| | Sealed and liquid cooled three-chip DLP | |
| Lamps | **Lamp** | |
| | 2 kW Xenon (NW-12); 1.5 KW Xenon (NW-7) | |
| | **Lamp warranty** | |
| | 750 hrs waranted, max. 1,000 hrs (NW-12) | |
| | 1,000 hrs waranted (NW-7) | |
| Dimensions | **Weight** | |
| | 70 kg (154.2 lbs) net - 85 kg (187.4 lbs) shipping weight | |
| | **Height - width - length** | |
| | 345 / 590 / 913 mm | |
| | 13.58" / 23.22" / 35.94" | |
| Lenses | **Available zoom lenses** | |
| | TLD+ (1.5-2.0:1) | R9862010 |
| | TLD+ (2.0-2.8:1) | R9862020 |
| | TLD+ (2.8-4.5:1) | R9862030 |
| | TLD+ (4.5-7.5:1) | R9862040 |
| | **Available fixed focal lenses** | |
| | TLD+ (0.73:1) | R9862000 |
| | TLD+ (1.2:1) | R9840775 |
| | **Lens shift range** | |
| | Horizontal shift up to +/- 65% | |
| | Vertical shift up to +/- 110% | |
| Features | **Special features** | |
| | Standerd active and polarized stereo, optional passive or active Infitec | |
| | Source and PiP operation through Windows OS | |
| | Standard full geometry correction | |
| | Sealed, liquid-cooled engine | |
| | Multi-channel features | |

| | | |
|---|---|---|
| Inputs and outputs | **Standard inputs** | |
| | Twin dual link DVI | |
| | 3 stereo sync inputs (mini-DIN) | |
| | **Optional inputs** (2 free layers) | |
| | QXGA RGBHV input | |
| | DVI/D15 input (HDCP) | |
| | Extra twin dual link DVI | |
| | **Communication ports** | |
| | RS232 (on D9) | |
| | 10/100 Mb/s Ethernet (on RJ45) | |
| Compatibility | **Data** | |
| | Analog sources with a pixel clock of up to 270 MHz | |
| | DVI sources with a pixel clock of up to 300 MHz | |
| Safety | **Safety standards** | |
| | ETL60950 and EN60950 | |
| | CE compliant | |
| | CCC compliant | |
| Power | **AC power** | |
| | 200 - 240 VAC/50-60 Hz | |
| | **Max. power consumption / dissipation** | |
| | 2,800 Watt / 9,560 BTU | |
| Order info | Galaxy NW-7 | R9040406 |
| | Galaxy NW-12 | R9040411 |
| | New 1.5 kW lamp | R9843085 |
| | New 2kW lamp | R9843087 |
| | Refurbished lamp NW-7 | R9843095 |
| | Refurbished lamp NW-12 | R9843097 |
| | QXGA RGBHV input | R9843020 |
| | DVI/D15 input (HDCP) | R9843045 |
| | Twin dual DVI | R9843041 |

M00147-R02-0212-PB

DLP™ technology by Texas Instruments offers crystal clear images with superior quality. DLP is a trademark of Texas Instruments.

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# CD series

## Cross-cockpit collimated display system



Barco's cross-cockpit collimated display system is a fully integrated, optimized simulator for accurate **side-by-side cockpit training**. The CD series combine Barco's expertise in projection, mechanical structures, screens and display alignment to form one comprehensive solution from the same manufacturer. This means you only need **one address** to turn to for design, installation and service. It offers the following key features:

- 220° x 45° field of view
- most accurate geometry correction
- exceeds Level D and ICAO 9625 Ed.3 standards
- motion-base compatibility
- choice between three- or five-projector setup
- automated alignment tools

With an extensive experience of **over 25 years** in the training and simulation market, Barco has the right know-how in the design, manufacture and installation of complex display systems. Barco is the major key **independent visualization provider** in simulation, and its long track record of business relationship with big companies in the industry easily speaks for itself.

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# CD series

## Superior system performance

Since Barco manufactures all the components of this display, including the optical system and projectors, Barco can **guarantee the total system performance**. The CD series offer the highest resolution and highest brightness images available, and **exceed the new ICAO 9625 Ed. 3** performance standard. Barco's polyester film mirror has the best optical performance and is the heart of the display.

## Superior image quality

The CD series come with Barco's advanced **liquid crystal on silicon** (LCoS) projection technology that is FAA Level-D certified. The purpose-designed Barco projectors feature technology that strongly **reduces smearing** of fast-moving images so that pilots can detect, recognize and identify objects much faster. With Barco's unique constant contrast dimming, extended contrast ratio and improved infrared features, your image's dynamic contrast can become over **2,000,000:1**. And with black levels on par with CRT standards, this creates the ideal circumstance for **night training**.

## World-wide presence and service

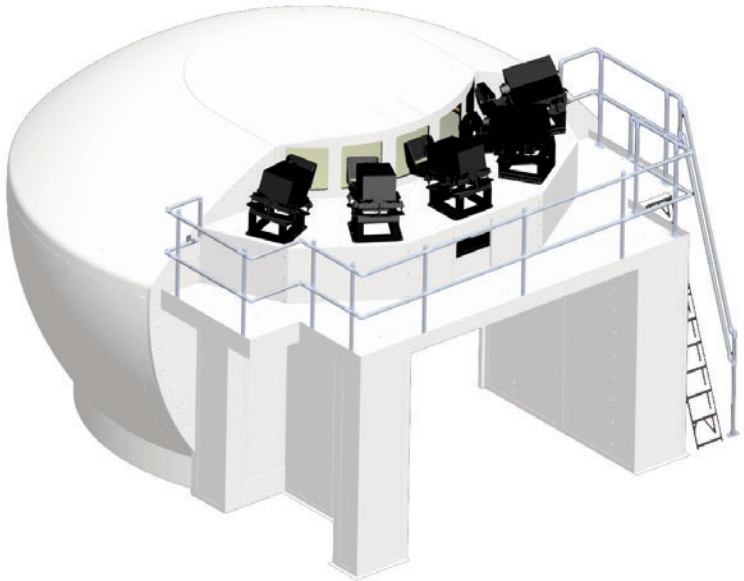
Barco's worldwide presence and long-term involvement with the training and simulation market ensures we can implement the collimated display globally, with our local teams and partners. Our after-sales care is not an afterthought, but a full commitment to **increasing system uptime**. Barco works with you on a tailor-made maintenance program to help you achieve the performance you target. In addition, we employ service desks that can help you in your native language, and offer service agreements tuned to your needs.



- smear-free operation
- flawless edge blending
- color and brightness uniformity
- superb geometry correction



- 220° x 45° field of view
- up 25° and down 20° / up 22.5° and down 22.5° shifts
- light-weight 10 feet radius film mirror



- light-weight 10 feet radius film mirror
- AFT structure option

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# Control room video walls

## Product catalog




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Barco:
global **leader**
in professional
visualization
solutions

Monitoring
**50% of the**
**world's**
electricity
transport

Helping **over**
**2.5 billion**
commuters
get home
safely every
day

Supporting security management in **more than 100** metropolitan centers

Helping over **300 million** people keep in touch

**2 billion** people watch Barco every day

# The most complete portfolio for control room visualization



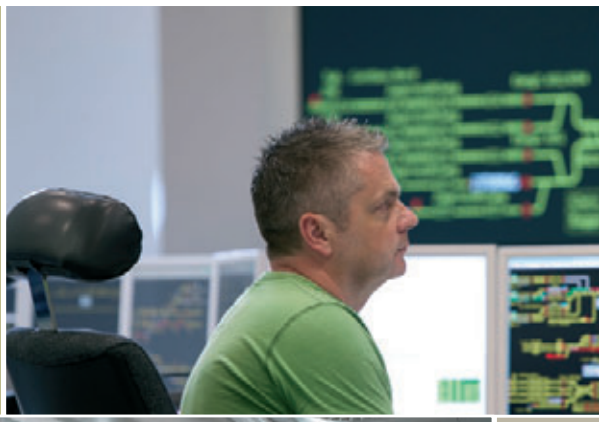


Emergency operation centers, power plants, traffic management centers and other control rooms are all about monitoring business-critical or even life-critical operations, 24 hours a day, 365 days per year. These nerve centers are one of the most demanding environments, with operators relying on dependable visualization, often in a networked setup, for their decision making.

Building on a wide expertise and long history in control room visualization, Barco's extensive portfolio of video wall products features LED and LCD display cubes for video walls, personal video walls, networked and network-ready controllers and wall management software.

Rear-projected video walls

10

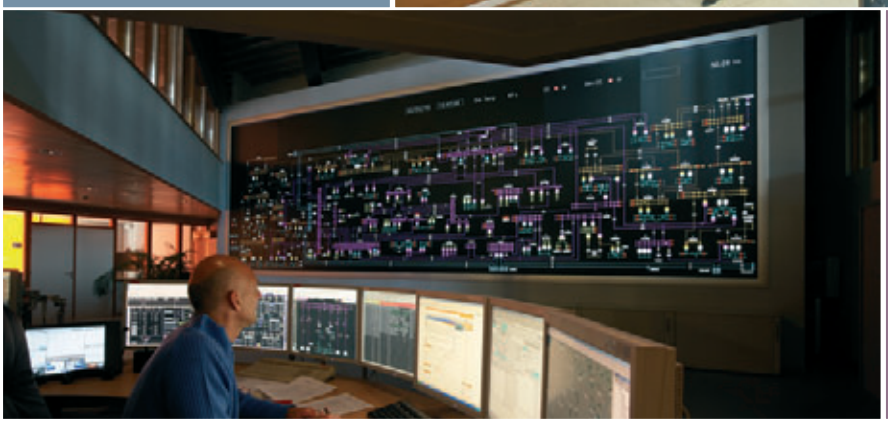




Complementary services

28







LCD video walls

22



Technical specifications

32


**Rear-projected video walls**

| | | | |
|---|---|---|---|
| LED video walls | OL series | OL-510 | 12 |
| | | OL-521 | 12 |
| | | OL-710 | 12 |
| | | OL-721 | 12 |
| | OLF series | OLF-510 | 14 |
| | | OLF-521 | 14 |
| | | OLF-710 | 14 |
| | | OLF-721 | 14 |
| | OLS(F) series | OLS-521 | 16 |
| | | OLS-721 | 16 |
| | | OLSF-521 | 16 |
| | | OLSF-721 | 16 |
| | OVL series | OVL-508 | 18 |
| | | OVL-515 | 18 |
| | | OVL-708 | 18 |
| | | OVL-715 | 18 |
| | | OVL-808 | 18 |
| | | OVL-815 | 18 |
| Lamp video walls | OV-D2 series | OV-508 | 20 |
| | | OV-513 | 20 |
| | | OV-515 | 20 |
| | | OV-708 | 20 |
| | | OV-713 | 20 |
| | | OV-715 | 20 |
| | | OV-808 | 20 |
| | | OV-815 | 20 |
| | | OV-1008 | 20 |
| | | OV-1015 | 20 |

**LCD video walls**

| | | | |
|---|---|---|---|
| Narrow bezel LCD video walls | NSL series | NSL-4601 | 24 |
| | | NSL-5521 | 24 |

**Personal video walls**

| | | | |
|---|---|---|---|
| Wide screen LCD displays | LDX series | LDX-46 | 26 |
| | | LDX-55 | 26 |

**Complementary services**

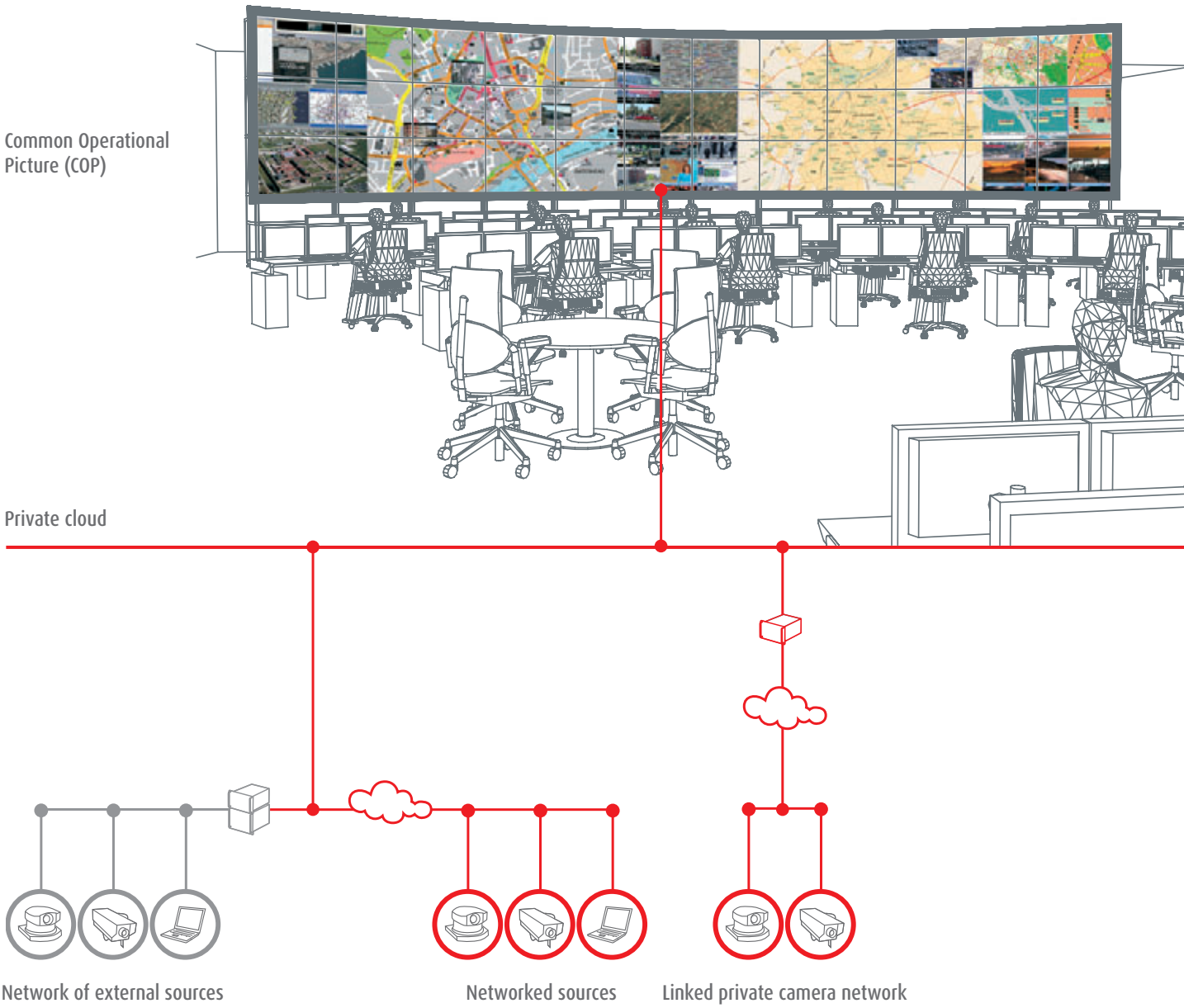
| | |
|---|---|
| Alternative screens | 30 |
| Touch screen | 30 |
| Professional services | 30 |
| Sense[6] | 31 |
| Technology refresh program | 31 |

**Technical specifications**

| | | |
|---|---|---|
| LED video walls | OL(F) series | 34 |
| | OLS series | 36 |
| | OVL series | 38 |
| Lamp video walls | OV-D2 series | 40 |
| LCD video walls | NSL series | 42 |
| Personal video walls | LDX series | 43 |
| Comparative table | | 44 |

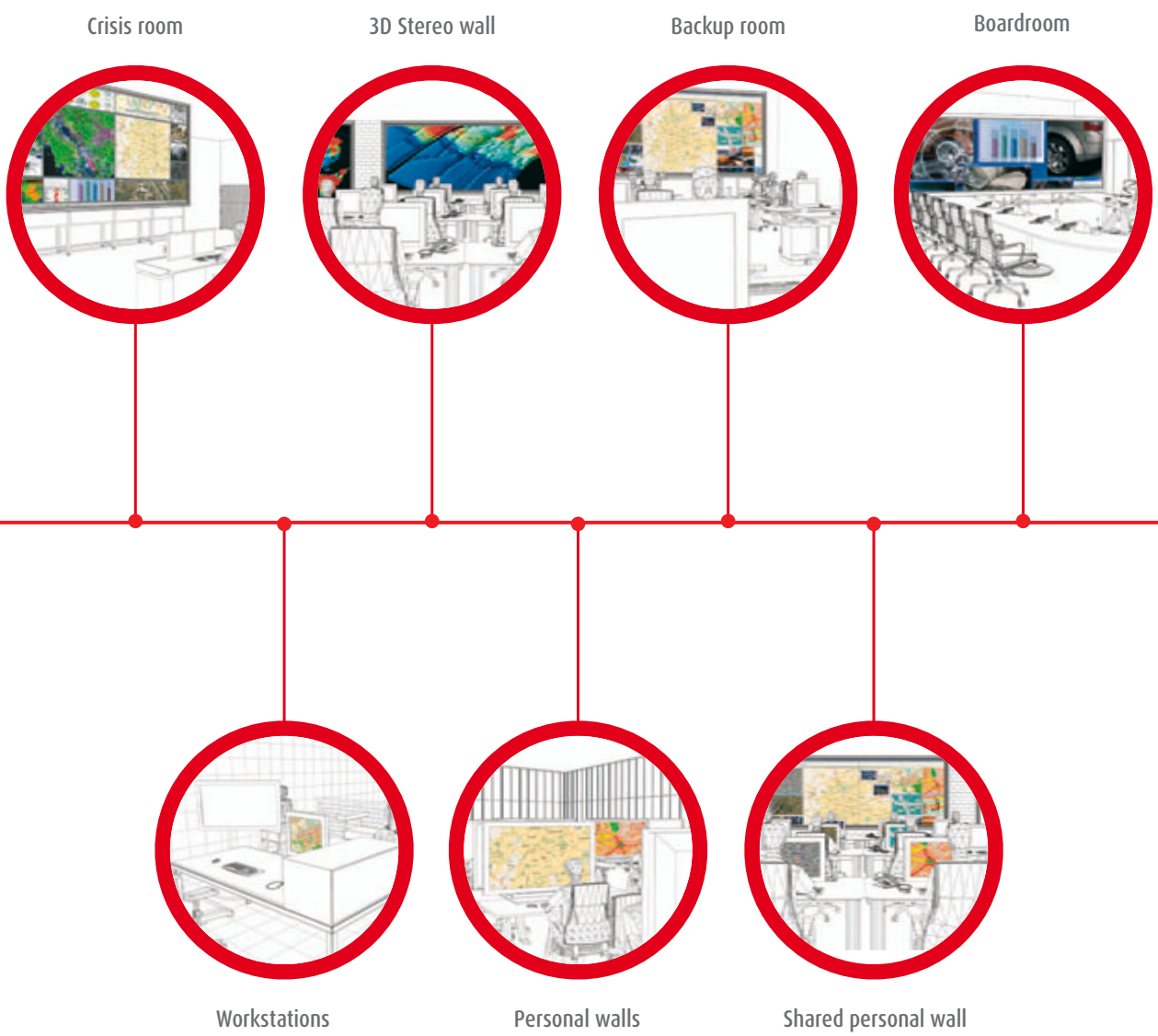
# Scalable, networked & future-proof solutions

Barco's portfolio for the control rooms market consists of visualization equipment, controllers and software. By bringing these components together in total concepts, users discover the true power of our products. The result: easier information sharing, faster communication, and optimal performance of the control rooms.



## Networked visualization

Barco's networked visualization solution is the most versatile control room management system on the market today. It allows the safe and easy distribution of any data or video source over the standard IP network, between multiple rooms and even multiple locations around the world. This innovative system takes data from an unlimited number of inputs, distributes it over an unlimited distance and displays on an unlimited number of visualization equipment, to offer an unmatched level of flexibility and expandability. Our system even supports the secure distribution of information over different private clouds, for example to share content between various public services.





# REAR-PROJECTION VIDEO WALLS

Available in a very large variety of screen sizes and formats, Barco's LED-lit and lamp-lit rear-projection video walls suit all medium to large sized control rooms. The availability of upgrade kits guarantees that your investment is safe across technical updates and that the lifetime of your visualization system is extended.

**LED video walls**

OL series

OLF series

OLS(F) series

OVL series

**Lamp video walls**

OV-D2 series

# 16:9 LED video walls: OL series

## 50″ and 70″ LED rear-projection cubes

Barco's OL LED projection module has been awarded with the red dot quality label for its outstanding design, offering an ergonomically excellent viewing experience, with the sharpest and most saturated colors in WXGA or full HD resolution.

The OL video wall has been designed for an entirely maintenance-free operation over several years, without any need for consumables. The OL comes with Sense$^{6}$, a unique sensor technology that automatically provides brightness and color stability over time and across the entire display. Sense$^{6}$ continuously measures brightness and color and adjusts the color space to provide an image that is most convenient for the human eye.

Thanks to the small depth of the projection module the OL display cube can easily be installed in small rooms. The rugged design also makes these video walls suited for industrial environments.



### Key characteristics

- > 3rd generation LEDs for unmatched brightness & minimal power consumption
- > Sense$^{6}$ technology for brightness and color stability
- > Liquid cooling ensures longer LED lifetime
- > Extremely silent
- > No mercury or other toxic materials used
- > Less disposables, less waste
- > Lightweight for easier transport and installation
- > Recyclable
- > Rugged design, suited for industrial environments

| | | OL-510 | OL-521 | OL-710 | OL-721 |
|---|---|---|---|---|---|
| **Resolution** | | WXGA | Full HD | WXGA | Full HD |
| **Pixels** | | 1368 x 768 | 1920 x 1080 | 1368 x 768 | 1920 x 1080 |
| **Diagonal** | inch | 50 | 50 | 70 | 70 |
| **Aspect ratio** | | 16:9 | 16:9 | 16:9 | 16:9 |
| **Access mode** | | back | back | back | back |
| **Dimensions** (W x H x D) | mm | 1,088 x 612 x 454 | 1,088 x 612 x 454 | 1,550 x 872 x 622 | 1,550 x 872 x 622 |
| **Dimensions** (W x H x D) | inch | 42.8 x 24.1 x 17.9 | 42.8 x 24.1 x 17.9 | 61.x 34.3 x 24.5 | 61. x 34.3 x 24.5 |
| **Weight** | kg | 44 | 44 | 61 | 61 |
| **Weight** | lbs | 97 | 97 | 146 | 146 |

## OL-510




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OL-521




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OL-710




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

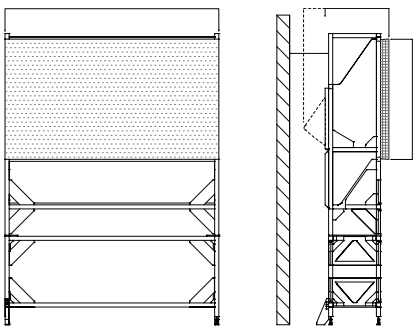
## OL-721




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out



Alternative screen types available



# 16:9 LED video walls with front access: OLF series

## Front accessible 50″ and 70″ LED rear-projection cubes

Barco's OLF LED projection module offers an ergonomically excellent viewing experience, with the sharpest and most saturated colors in WXGA resolution or full HD resolution.

Additionally, this series offers front accessibility, which eliminates the need for a rear maintenance area and drastically limits the space needed in the control room. Added to the already thin design of the OLF series, these video wall cubes can really claim the smallest footprint.

The OLF video wall has been designed for an entirely maintenance-free operation over several years, without any need for consumables. The series comes with Sense[6], a unique sensor technology that automatically provides brightness and color stability over time and across the entire display. Sense[6] continuously measures brightness and color and adjusts the color space to provide an image that is most convenient for the human eye.



### Key characteristics

- > 3rd generation LEDs for unmatched brightness & minimal power consumption
- > Sense[6] technology for brightness and color stability
- > Front accessibility eliminates the need for rear maintenance area
- > Liquid cooling ensures longer LED lifetime
- > Extremely silent
- > No mercury or other toxic materials used
- > Less disposables, less waste
- > Lightweight for easier transport and installation
- > Recyclable
- > Rugged design, suited for industrial environments
- > Brightest cube in class

| | | OLF-510 | OLF-521 | OLF-710 | OLF-721 |
|---|---|---|---|---|---|
| **Resolution** | | WXGA | Full HD | WXGA | Full HD |
| **Pixels** | | 1368 x 768 | 1920 x 1080 | 1368 x 768 | 1920 x 1080 |
| **Diagonal** | inch | 50 | 50 | 70 | 70 |
| **Aspect ratio** | | 16:9 | 16:9 | 16:9 | 16:9 |
| **Access mode** | | front and back | front and back | front and back | front and back |
| **Dimensions** (W x H x D) | mm | 1,088 x 612 x 454 | 1,088 x 612 x 454 | 1,550 x 872 x 622 | 1,550 x 872 x 622 |
| **Dimensions** (W x H x D) | inch | 42.8 x 24.1 x 17.9 | 42.8 x 24.1 x 17.9 | 61.1 x 34.3 x 24.5 | 61.1 x 34.3 x 24.5 |
| **Weight** | kg | 53 | 53 | 74 | 74 |
| **Weight** | lbs | 117 | 117 | 163 | 163 |

## OLF-510




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OLF-521




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OLF-710




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

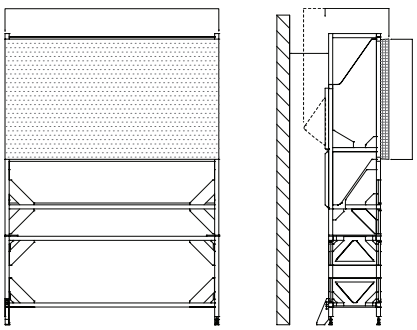
## OLF-721




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out



Alternative screen types available



# 16:9 LED video walls with 3D-stereo: OLS series

## Stereoscopic 50″ and 70″ LED rear-projection series

Barco's extensive expertise in 3D visualization solutions has led to the design of the OLS LED video walls. This series brings vivid stereoscopy to control rooms, contributing to the increasing deployment of 3D content.

OLS projection modules also offer an ergonomically excellent viewing experience, with the sharpest and most saturated colors in full HD resolution. Furthermore, the series has been designed for an entirely maintenance-free operation over several years, without the need for consumables.

The OLS comes with Sense[6], a unique sensor technology that automatically provides brightness and color stability over time and across the entire display. Sense[6] continuously measures brightness and color and adjusts the color space to provide an image (2D or 3D) that is most convenient for the human eye.



### Key characteristics

- > 3rd generation LEDs for unmatched brightness & minimal power consumption
- > 3D stereo using active shutter glasses
- > Low total cost of ownership
- > Liquid cooling ensures longer LED lifetime
- > Vivid LED colors
- > Sense[6] technology for brightness and color stability
- > Can be arranged in any shape and size
- > Cost-effective
- > Cubes can be combined to create high wall resolutions
- > Optional front accessibility

| | | OLS-521 | OLS-721 | OLSF-521 | OLSF-721 |
|---|---|---|---|---|---|
| **Resolution** | | Full HD | Full HD | Full HD | Full HD |
| **Pixels** | | 1920 x 1080 | 1920 x 1080 | 1920 x 1080 | 1920 x 1080 |
| **Diagonal** | inch | 50 | 70 | 50 | 70 |
| **Aspect ratio** | | 16:9 | 16:9 | 16:9 | 16:9 |
| **Access mode** | | back | back | front and back | front and back |
| **Dimensions** (W x H x D) | mm | 1,088 x 612 x 454 | 1,550 x 872 x 622 | 1,088 x 612 x 454 | 1,550 x 872 x 622 |
| **Dimensions** (W x H x D) | inch | 42.8 x 24.1 x 17.9 | 61 x 34.3 x 24.5 | 42.8 x 24.1 x 17.9 | 61 x 34.3 x 24.5 |
| **Weight** | kg | 44 | 63 | 53 | 73 |
| **Weight** | lbs | 97 | 139 | 117 | 161 |

## OLS-521




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OLS-721




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OLSF-521




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

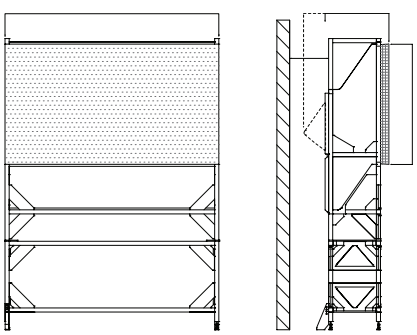
## OLSF-721




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out



Alternative screen types available



# 4:3 LED video walls: OVL series

## 50″, 70″ and 80″ LED rear-projection cubes

Barco's OVL LED projection system is equipped with a liquid cooling system, lifting the LED illumination to a new level of brightness. This projection module offers an ergonomically excellent viewing experience, with the brightest and most saturated colors in XGA or SXGA+ resolution.

The OVL video walls have been designed for an entirely maintenance-free operation over several years, without any need for consumables. Furthermore, the OVL series comes with Sense6, a unique auto-calibration technology that provides brightness and color stability over time and across the entire display. This means that no maintenance or manual adjustments are needed.

Thanks to the modular design of the OVL-projection engine, the OVL projector can also be used to upgrade existing Barco rear-projection modules of the Overview D series.



### Key characteristics

- > 3rd generation LEDs for unmatched brightness & minimal power consumption
- > Sense6 technology for brightness and color stability
- > Liquid cooling ensures longer LED lifetime
- > Extremely silent
- > No mercury or other toxic materials used
- > Less disposables, less waste
- > Maintenance-free
- > Rugged design, suited for industrial environments

| | | OVL-508 | OVL-515 | OVL-708 | OVL-715 |
|---|---|---|---|---|---|
| **Resolution** | | XGA | SXGA+ | XGA | SXGA+ |
| **Pixels** | | 1024 x 768 | 1400 x 1050 | 1024 x 768 | 1400 x 1050 |
| **Diagonal** | inch | 50 | 50 | 70 | 70 |
| **Aspect ratio** | | 4:3 | 4:3 | 4:3 | 4:3 |
| **Access mode** | | back | back | back | back |
| **Dimensions** (W x H x D) | mm | 1,000 x 750 x 734 | 1,000 x 750 x 734 | 1,400 x 1,050 x 899 | 1,400 x 1,050 x 899 |
| **Dimensions** (W x H x D) | inch | 39.4 x 29.52 x 28.9 | 39.4 x 29.52 x 28.9 | 55.1 x 41.2 x 35.4 | 55.1 x 41.2 x 35.4 |
| **Weight** | kg | 65 | 65 | 101.5 | 101.5 |
| **Weight** | lbs | 143 | 143 | 224 | 224 |

## OVL-X08




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OVL-X15

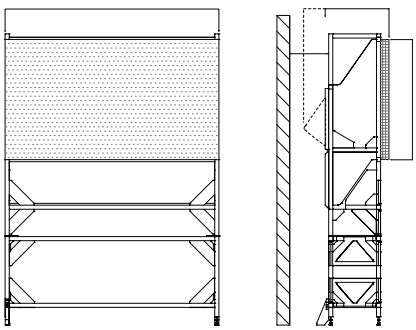



**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out



Alternative screen types available

| OVL-808 | OVL-815 |
|---|---|
| XGA | SXGA+ |
| 1024 x 768 | 1400 x 1050 |
| 80 | 80 |
| 4:3 | 4:3 |
| back | back |
| 1,600 x 1,200 x 1,023 | 1,600 x 1,200 x 1,023 |
| 63 x 47.2 x 40.3 | 63 x 47.2 x 40.3 |
| 131.3 | 131.3 |
| 289 | 289 |



# Lamp video walls: OV-D2 series

## 50″, 70″, 80″ and 100″ rear-projection cubes

Barco's OV-D2 series are designed and optimized for use in a 24/7 mission critical environment. The Barco designed projection engine provides a set of unique features, resulting in outstanding picture quality, reliability and ease of use.

The 50″ and 70″ versions are available in XGA, SXGA and SXGA+ resolutions. The high brightness and number of pixels per inch make them ideal for usage in broadcast applications, or to display video and detailed content. The 80″ and 100″ models, available in XGA and SXGA+ resolution, provide Barco-quality pictures for a minimal cost per square meter.



### Key characteristics

- > High contrast DLP technology optimizes picture quality
- > Brightness, contrast and viewing angles tailored to human eye
- > Vibrant colors
- > Sense[6] technology for brightness and color stability
- > Ultimate reliability
- > Fast Ethernet communication
- > Projection modules integrated into single display

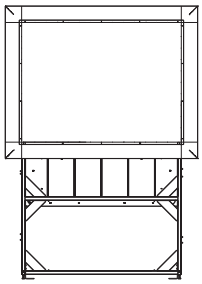
| | | OV-508 | OV-513 | OV-515 | OV-708 |
|---|---|---|---|---|---|
| **Resolution** | | XGA | SXGA | SXGA+ | XGA |
| **Pixels** | | 1024 x 768 | 1280 x 1024 | 1400 x 1050 | 1024 x 768 |
| **Diagonal** | inch | 50 | 50 | 50 | 70 |
| **Aspect ratio** | | 4:3 | 5:4 | 4:3 | 4:3 |
| **Access mode** | | back | back | back | back |
| **Dimensions** (W x H x D) | mm | 1,000 x 750 x 734 | 1,000 x 800 x 715 | 1,000 x 750 x 734 | 1,400 x 1,050 x 899 |
| **Dimensions** (W x H x D) | inch | 39.4 x 29.5 x 28.9 | 39.4 x 31.5 x 28.1 | 39.4 x 29.5 x 28.9 | 55.1 x 41.3 x 35.4 |
| **Weight** | kg | 65 | 68.5 | 65 | 101.5 |
| **Weight** | lbs | 143 | 151 | 143 | 224 |

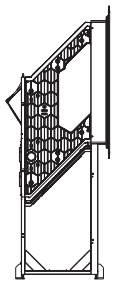
# OV-D2 series

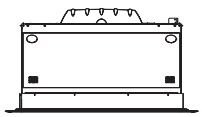



**Input/Output:** 1 x DVI-D in/out, 1 x Dual-link DVI-D in/out









Alternative screen types and lamps available

| OV-713 | OV-715 | OV-808 | OV-815 | OV-1008 | OV-1015 |
|---|---|---|---|---|---|
| SXGA | SXGA+ | XGA | SXGA+ | XGA | SXGA+ |
| 1280 x 1024 | 1400 x 1050 | 1024 x 768 | 1400 x 1050 | 1024 x 768 | 1400 x 1050 |
| 70 | 70 | 80 | 80 | 100 | 100 |
| 5:4 | 4:3 | 4:3 | 4:3 | 4:3 | 4:3 |
| back | back | back | back | back | back |
| 1,400 x 1,120 x 973 | 1,400 x 1,050 x 899 | 1,600 x 1,200 x 1,023 | 1,600 x 1,200 x 1,023 | 2,032 x 1,524 x 1,400 | 2,032 x 1,524 x 1,400 |
| 55.1 x 44.1 x 38.3 | 55.1 x 41.3 x 35.4 | 63 x 47.2 x 40.3 | 63 x 47.2 x 40.3 | 80 x 60.2 x 55.1 | 80 x 60.2 x 55.1 |
| 108.5 | 101.5 | 131.3 | 131.3 | 273.5 | 273.5 |
| 239 | 224 | 289 | 289 | 602 | 602 |


CNN
Réceptions satellite

# LCD VIDEO WALL SOLUTIONS

Specifically designed for small and medium-sized control rooms, Barco's LCD displays produce sharp, high-quality images for demanding applications. Combining the typical benefits of LCD technology – low maintenance, thin design, wide viewing angle, ... - with Barco's knowhow in professional visualization, these display solutions are the best choice for any control room.

**LCD video walls**

NSL series

**Personal video walls**

LDX series

# LCD video walls: NSL series

## 46″ and 55″ narrow-bezel LCD for control rooms

Barco's NSL-5521, a 55″ full HD LCD with LED backlights, combines high brightness and a durable LED backlight technology with an extremely narrow bezel for excellent tiled visual performance.

The Barco NSL-4601 is a professional grade, narrow-bezel 46″ LCD display with WXGA resolution, which has been designed for tiled video wall applications in small to medium-sized control rooms.

As a tiled LCD solution, the NSL series is ideal for personal wall environments and adjunct control rooms in Emergency Operations Centers, traffic management and surveillance centers, C4I-SR environments, utilities & process control centers and broadcast & telecom monitoring applications.




### Key characteristics

- > High resolution
- > Cooling system seperating hot and cold air
- > Anti image retention circuitry
- > Minimal seam for optimal tiled visual performance
- > Multiple sources (video, PC content or streaming video)
- > Scaled or native resolutions
- > Stable colors thanks to display consistency management software
- > Front and rear accessibility

| | | NSL-4601 | NSL-5521 |
|---|---|---|---|
| **Backlight** | | CCFL lamps | Direct LED |
| **Resolution** | | WXGA | Full HD |
| **Pixels** | | 1366 x 768 | 1920 x 1080 |
| **Diagonal** | inch | 46 | 55 |
| **Aspect ratio** | | 16:9 | 16:9 |
| **Access mode** | | front and back | front and back |
| **Dimensions** (W x H x D) | mm | 1,026 x 580 x 98 | 1,215 x 686 x 98 |
| **Dimensions** (W x H x D) | inch | 40.4 x 22.8 x 3.9 | 47.8 x 27 x 3.9 |
| **Weight** | kg | 29.8 | 35 |
| **Weight** | lbs | 65.7 | 77.3 |

## NSL-4601




**Input/Output:** DSUB-15P in/out, DVI-D in/out, BNC in/out, S-video in/out

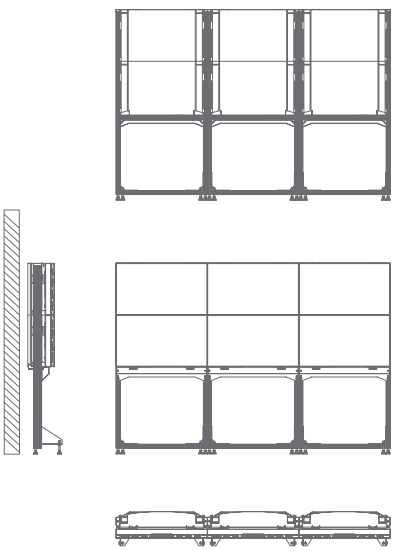
## NSL-5521




**Input/Output:** DSUB-15P in/out, DVI-D in/out, BNC in/out, S-video in/out



Floor- and wall mount solution available with heat management to avoid accumulation of heat at the higher rows



# Personal video walls: LDX series

## 46″ and 55″ wide screen LCD displays

Barco's LDX series display with LED backlights has been designed for use in a wide variety of professional applications. The LDX produces crisp, bright and color-accurate images on a 46″ or 55″ screen.

Featuring LED backlit LCD technology, the LDX boasts a high brightness and wide color gamut and provides an exceptionally thin and space-saving design. Available in native full high definition (1920 x 1080 pixels), the LDX is a high-quality display that can be deployed in a wide variety of markets.

Barco's LDX combines the typical benefits of liquid crystal technology (such as low maintenance costs) with energy-efficient LED backlights, reducing image burn-in and colorations, which makes it perfectly suited for long-term usage.



### Key characteristics

- > Anti Image Retention circuitry
- > Wide viewing angle
- > High brightness for use in all conditions
- > High contrast, even in high ambient light environments
- > High resolution and pixel density
- > Low power consumption

| | | LDX-46 | LDX-55 |
|---|---|---|---|
| **Backlight** | | Edge LED | Edge LED |
| **Resolution** | | Full HD | Full HD |
| **Pixels** | | 1920 x 1080 | 1920 x 1080 |
| **Diagonal** | inch | 46 | 55 |
| **Aspect ratio** | | 16:9 | 16:9 |
| **Dimensions** (WxHxD) | mm | 1,075 x 639 x 85 | 1,267 x 749 x 81 |
| **Dimensions** (WxHxD) | inch | 42.3 x 25.2 x 3.3 | 49.9 x 29.5 x 3.2 |
| **Weight** | kg | 28 | 35 |
| **Weight** | lbs | 61.8 | 77.3 |

## LDX-46



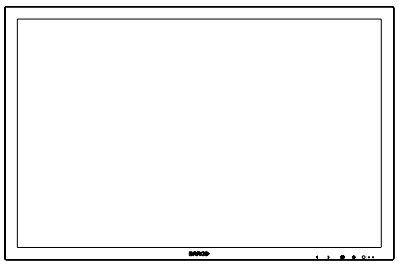

**Standard inputs:** DVI single link, display port, HDMI, VGA, 2xHDSDI+3Gb/s, analog video (CVBS, S-Video, Component)

## LDX-55




**Standard inputs:** DVI single link, display port, HDMI, VGA, 2xHDSDI+3Gb/s, analog video (CVBS, S-Video, Component)





Easy wall or ceiling installation using integrated mounting interfaces according to VESA standards



# COMPLEMENTARY SERVICES

Barco's complementary services help you choose, install and integrate the best possible visualization solution. You can rest assured that your system will always perform optimally and that you can upgrade critical components to follow new technologies like LED to extend your system's lifetime.

**Alternative screens**

**Professional services**

**Touch screen**

**Sense[6]**

**Technology refresh program**

# Technology options

## High contrast, high brightness screens

- Screens available for OL series: HVA (BB), FXS (standard), High Gain
- Screens available for OVL series: FXS (standard) and High Gain
- Screens available for OV-D2 series: HVA (standard), HVM and HVX
- Dedicated screens for high brightness or wide viewing angles
- Stitched and modular screens

When using rear-projection video walls, not only the projection engine is important, but also the screen used. The standard screens delivered with the Barco video wall cubes are aimed at offering high performance in all circumstances. However, for environments needing special requirements in terms of brightness, contrast, viewing angle and luminance, alternative screens can be selected.

## Touch screen

- Control over menus, buttons and objects on the display wall
- Write and save notes in software applications
- High touch accuracy
- Fast responsiveness
- Scalability for large video walls

With the Digital Vision Touch technology (DViT) from SMART Technologies, Barco's display wall solutions become truly interactive environments in which users can access and manipulate data on a large screen area. Barco's OVTS-50 Video Wall Touch System features SMART's high-precision touch screen technology enabling intuitive finger tip interaction on large-area display content.
SMART's DViT technology is an add-on product for the OVL and OV-D2 series, integrated at the bottom of the screen. The OVTS-50 system delivers unmatched accuracy and responsiveness and ensures real-time interaction on Barco's 50-inch video wall cubes.

## Professional services

- An extensive range of services, tailored to specific needs
- Perfect control of costs
- Pro-active maintenance and obsolescence management possibilities
- Single point of contact
- Training options available

Today's business-critical environments increasingly rely on visualization technology for monitoring and decision-making purposes. Due to the critical nature of the application, continuous availability and flexibility of these systems is a must. Barco's professional services, offered in cooperation with our reseller/integrator network, guide customers to choose the right technology, install and integrate their visualization solution and maintain the system following the industry standards.

Furthermore, these services allow to select value-added and custom-tailored options for small, medium and large-scale projects. Aided by this extensive range of professional services, customers get the most out of their investment, from the design phase through the entire project lifecycle.

## Sense$^6$

Sense$^6$ brings wall uniformity to the next level. Not only does Sense$^6$ increase color and brightness uniformity in the corners of each single projection module, Barco's innovative technology also keeps all projection modules equal over time and across the entire video wall.

By integrating a patented brightness and color sensor (for the lamp-based modules) or a spectrometer (LED-based), the video wall's color and brightness is continuously measured and communicated between projection modules. Sense$^6$ automatically matches the brightness of full white, full black and all gray levels in between, as well as the colors of all display modules.

Thanks to Barco's remote management software, operators and system administrators can easily control and calibrate individual display cubes or a complete video wall. As such, displays and projectors in a control room become a centrally managed asset, guaranteeing maximum uptime.

- > Ultimate color stability
- > Counteracts aging effects
- > Uniform color spreading over all cubes
- > No operator attention needed

## Technology refresh program

To bring your control room visualization technology to the most recent high-quality standards, Barco offers an all-in-one technology refresh program for its legacy video wall systems.
Barco's video wall upgrade kit enables to upgrade lamp-based OV-D2, D1 and p-Si video walls to the latest LED-powered technology. In a cost-effective way, you benefit from the many advantages LED technology has to offer, including longer lifetime, reduced maintenance costs and lower energy consumption. Furthermore, the upgraded projection engine ensures an improved on-screen legibility, contrast and uniformity, better ergonomics for operators by optimized brightness levels, increased LED performance thanks to liquid cooling, and LED redundancy for a maximal operational efficiency.

**The video wall upgrade kit includes:**

- New LED-based projection engine
- New illumination unit with input box and cooling unit
- New mounting brackets & sheet metal
- Technology assessment for video wall controller upgrade

- > Secure your Barco investment for the future
- > Minimize system downtime during installation
- > Eliminate the need for cabling and architectural works
- > Benefit from new technology in the most cost-effective way
- > Preserve previous configuration and calibration
- > Ensure a smooth sustainable transition


22/04/10
14:47:03

# TECHNICAL SPECIFICATIONS

**Technical specifications**

OL(F) series

OLS(F) series

OVL series

OV-D2 series

NSL series

LDX series

# 16:9 LED video walls
## OL(F) series
## 3rd generation LEDs

| SPECIFICATIONS | | | OL-510 | OL-521 | OL-710 |
|---|---|---|---|---|---|
| | | |  |  |  |
| | | | WXGA resolution | Full HD resolution | WXGA resolution |
| Screen diagonal | | inch | 50 | 50 | 70 |
| Resolution | | pixel | 1368 x 768 | 1920 x 1080 | 1368 x 768 |
| Absolute resolution | | dpi | 32 | 45 | 22.5 |
| Aspect ratio | | 1 | 16:9 | 16:9 | 16:9 |
| Screen | | type | FXS[1] | FXS[1] | FXS[1] |
| Brightness on screen | FXS, REC709 | Cd/m² | 490 | 490 | 240 |
| Contrast | | dynamic | 560,000:1 | 560,000:1 | 560,000:1 |
| Max color gamut | | % of EBU | 165 | 165 | 165 |
| White point | | K | 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary |
| Color sequence | | x frame rate | 24 | 24 | 24 |
| Color control | | type | Sense[6] | Sense[6] | Sense[6] |
| Internal color processing | | bit | 3x24 | 3x24 | 3x24 |
| Color measurement device | | type | Spectrometer | Spectrometer | Spectrometer |
| Color measurement | | color data points | 256 | 256 | 256 |
| Light source | | type | LED | LED | LED |
| Redundancy of lightsource | | n-fold | 6 | 6 | 6 |
| Lifetime of light source | | h | 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 |
| Access mode | | type | back | back | back |
| Geometry alignment | | type | motorized | motorized | motorized |
| Power consumption | | eco \| typ \| max W | 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 |
| On board web server | | | ✓ | ✓ | ✓ |
| Wall control PC | | | ✓ | ✓ | ✓ |
| Web service API | | | ✓ | ✓ | ✓ |
| Connectivity | | type | 2x dual DVI in/out | 2x dual DVI in/out | 2x dual DVI in/out |
| Screen gap (@ 25°C) | | Hor. \| vert. mm | 0.8 \| 0.5 | 0.8 \| 0.5 | 1.0 \| 0.7 |
| Screen gap (@ 25°C) | | Hor. \| vert. inch | 0.03 \| 0.02 | 0.03 \| 0.02 | 0.04 \| 0.03 |
| Screen width | | mm | 1,088 | 1,088 | 1,550 |
| Screen height | | mm | 612 | 612 | 872 |
| Depth | | mm | 454 | 454 | 622 |
| Weight | | kg | 44 | 44 | 66 |
| Screen width | | inch | 42.8 | 42.8 | 61 |
| Screen height | | inch | 24.1 | 24.1 | 34.3 |
| Depth | | inch | 17.9 | 17.9 | 24.5 |
| Weight | | lbs | 97 | 97 | 146 |

[1] available alternative screens for video walls: FXS (standard), HVA, High Gain
For other dimensions, please contact your sales representative.

| OL-721 | OLF-510 | OLF-521 | OLF-710 | OLF-721 |
|---|---|---|---|---|
|  |  |  |  |  |
| **Full HD resolution** | **WXGA resolution** | **Full HD resolution** | **WXGA resolution** | **Full HD resolution** |
| 70 | 50 | 50 | 70 | 70 |
| 1920 x 1080 | 1368 x 768 | 1920 x 1080 | 1368 x 768 | 1920 x 1080 |
| 31.5 | 32 | 45 | 22.5 | 31.5 |
| 16:9 | 16:9 | 16:9 | 16:9 | 16:9 |
| FXS[1] | FXS[1] | FXS[1] | FXS[1] | FXS[1] |
| 240 | 490 | 490 | 240 | 240 |
| 560,000:1 | 560,000:1 | 560,000:1 | 560,000:1 | 560,000:1 |
| 165 | 165 | 165 | 165 | 165 |
| 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary |
| 24 | 24 | 24 | 24 | 24 |
| Sense[6] | Sense[6] | Sense[6] | Sense[6] | Sense[6] |
| 3x24 | 3x24 | 3x24 | 3x24 | 3x24 |
| Spectrometer | Spectrometer | Spectrometer | Spectrometer | Spectrometer |
| 256 | 256 | 256 | 256 | 256 |
| LED | LED | LED | LED | LED |
| 6 | 6 | 6 | 6 | 6 |
| 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 |
| back | front and back | front and back | front and back | front and back |
| motorized | motorized | motorized | motorized | motorized |
| 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 |
| ✓ | ✓ | ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ | ✓ | ✓ |
| 2x dual DVI in/out | 2x dual DVI in/out | 2x dual DVI in/out | 2x dual DVI in/out | 2x dual DVI in/out |
| 1.0 \| 0.7 | 1.8 \| 1.1 | 1.8 \| 1.1 | 2.3 \| 1.6 | 2.3 \| 1.6 |
| 0.04 \| 0.03 | 0.07 \| 0.05 | 0.07 \| 0.05 | 0.09 \| 0.07 | 0.09 \| 0.07 |
| 1,550 | 1,088 | 1,088 | 1,550 | 1,550 |
| 872 | 612 | 612 | 872 | 872 |
| 622 | 454 | 454 | 622 | 622 |
| 66 | 53 | 53 | 74 | 74 |
| 61 | 42.8 | 42.8 | 61 | 61 |
| 34.3 | 24.1 | 24.1 | 34.3 | 34.3 |
| 24.5 | 17.9 | 17.9 | 24.5 | 24.5 |
| 146 | 117 | 117 | 163 | 163 |

# 16:9 3D LED video walls
## OLS(F) series
## 3rd generation LEDs

| SPECIFICATIONS | | | OLS-521 | OLS-721 | OLSF-521 |
|---|---|---|---|---|---|
| | | |  |  |  |
| | | | Full HD resolution | Full HD resolution | Full HD resolution |
| Screen diagonal | | inch | 50 | 70 | 50 |
| Resolution | | pixel | 1920 x 1080 | 1920 x 1080 | 1920 x 1080 |
| Absolute resolution | | dpi | 45 | 31 | 45 |
| Aspect ratio | | 1 | 16:9 | 16:9 | 16:9 |
| Screen | | type | FXS[1] | FXS[1] | FXS[1] |
| Brightness on screen | FXS, REC709 | Cd/m² | 490 \| 330 in 2D \| 3D | 240 \| 160 in 2D \| 3D | 490 \| 330 in 2D \| 3D |
| Contrast | | dynamic | 560,000:1 | 560,000:1 | 560,000:1 |
| Max color gamut | | % of EBU | 165 | 165 | 165 |
| White point | | K | 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary |
| Color sequence | | x frame rate | 24 | 24 | 24 |
| Color control | | type | Sense[6] | Sense[6] | Sense[6] |
| Internal color processing | | bit | 3x24 | 3x24 | 3x24 |
| Color measurement device | | type | Spectrometer | Spectrometer | Spectrometer |
| Color measurement | | color data points | 256 | 256 | 256 |
| Light source | | type | LED | LED | LED |
| Redundancy of lightsource | | n-fold | 6 | 6 | 6 |
| Lifetime of light source | | h | 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 |
| Access mode | | type | back | back | front and back |
| Geometry alignment | | type | motorized | motorized | motorized |
| Power consumption | | eco \| typ \| max W | 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 |
| On board web server | | | ✓ | ✓ | ✓ |
| Wall control PC | | | ✓ | ✓ | ✓ |
| Web service API | | | ✓ | ✓ | ✓ |
| Connectivity | | type | 2x dual DVI in/out | 2x dual DVI in/out | 2x dual DVI in/out |
| Screen gap (@ 25°C) | | Hor. \| vert. mm | 0.8 \| 0.5 | 1 \| 0.7 | 1.8 \| 1.5 |
| Screen gap (@ 25°C) | | Hor. \| vert. inch | 0.03 \| 0.02 | 0.04 \| 0.03 | 0.07 \| 0.06 |
| Screen width | | mm | 1,088 | 1,550 | 1,088 |
| Screen height | | mm | 612 | 872 | 612 |
| Depth | | mm | 454 | 622 | 454 |
| Weight | | kg | 44 | 63 | 53 |
| Screen width | | inch | 42.8 | 61 | 42.8 |
| Screen height | | inch | 24.1 | 34.3 | 24.1 |
| Depth | | inch | 17.9 | 24.5 | 17.9 |
| Weight | | lbs | 97 | 139 | 117 |

[1] available alternative screens for video walls: FXS (standard), HVA, High Gain
For other dimensions, please contact your sales representative.

| OLSF-721 |
| --- |
|  |
| **Full HD resolution** |
| 70 |
| 1920 x 1080 |
| 31 |
| 16:9 |
| FXS[1] |
| 240 \| 160 in 2D \| 3D |
| 560,000:1 |
| 165 |
| 3,200 \| 6,500 \| 9,600 \| arbitrary |
| 24 |
| Sense[6] |
| 3x24 |
| Spectrometer |
| 256 |
| LED |
| 6 |
| 60,000 \| 80,000 |
| front and back |
| motorized |
| 170 \| 230 \| 350 |
| ✓ |
| ✓ |
| ✓ |
| 2x dual DVI in/out |
| 2 \| 1.7 |
| 0.08 \| 0.07 |
| 1,550 |
| 872 |
| 622 |
| 73 |
| 61 |
| 34.3 |
| 24.5 |
| 161 |

# 4:3 LED video walls
## OVL series
## 3rd generation LEDs

| SPECIFICATIONS | | | OVL-508 | OVL-515 | OVL-708 |
|---|---|---|---|---|---|
| | | |  |  |  |
| | | | XGA | SXGA+ | XGA |
| Screen diagonal | | inch | 50 | 50 | 70 |
| Resolution | | pixel | 1024 x 768 | 1400 x 1050 | 1024 x 768 |
| Absolute resolution | | dpi | 26 | 36 | 19 |
| Aspect ratio | | | 4:3 | 4:3 | 4:3 |
| Screen | | type | FXS[1] | FXS[1] | FXS[1] |
| Brightness on screen | FXS, REC709 | Cd/m² | 720 | 720 | 370 |
| Contrast | | dynamic | 1,200,000:1 | 1,200,000:1 | 1,200,000:1 |
| Max color gamut | | % of EBU | 165 | 165 | 165 |
| White point | | K | 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary |
| Color sequence | | x frame rate | 24 | 24 | 24 |
| Color control | | type | Sense[6] | Sense[6] | Sense[6] |
| Internal color processing | | bit | 3x24 | 3x24 | 3x24 |
| Color measurement device | | type | Spectrometer | Spectrometer | Spectrometer |
| Color measurement | | color data points | 256 | 256 | 256 |
| Light source | | type | LED | LED | LED |
| Redundancy of lightsource | | n-fold | 6 | 6 | 6 |
| Lifetime of light source | | typ \| eco hours | 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 |
| Access mode | | type | back | back | back |
| Geometry alignment | | type | manual | manual | manual |
| Power consumption | | eco \| typ \| max W | 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 |
| On board web server | | | ✓ | ✓ | ✓ |
| Wall control PC | | | ✓ | ✓ | ✓ |
| Web service API | | | ✓ | ✓ | ✓ |
| Connectivity | | | 2 x dual DVI in/out | 2 x dual DVI in/out | 2 x dual DVI in/out |
| Screen gap | | Modular screen | < 0.8 mm \| 0.03 inch | < 0.8 mm \| 0.03 inch | < 1.5 mm \| 0.06 inch[3] |
| | | Stitched screen | | | < 0.2 mm \| 0.008 inch[4] |
| Screen width | | mm | 1,000 | 1,000 | 1,400 |
| Screen height | | mm | 750 | 750 | 1,050 |
| Depth | | mm | 734 | 734 | 899 |
| Weight | | kg | 65 | 65 | 101.5 |
| Screen width | | inch | 39.4 | 39.4 | 55.1 |
| Screen height | | inch | 29.5 | 29.5 | 41.3 |
| Depth | | inch | 28.9 | 28.9 | 35.4 |
| Weight | | lbs | 143 | 143 | 224 |

[1] available alternative screens for video walls: FXS (high brightness, excellent viewing angle), High Gain (ultimate brightness, medium viewing angle)
[2] ZeroGap technology
[3] for optimal modular screen
[4] by patented stitch concept

| OVL-715 | OVL-808 | OVL-815 |
|---|---|---|
|  |  |  |
| SXGA+ | XGA | SXGA+ |
| 70 | 80 | 80 |
| 1400 x 1050 | 1024 x 768 | 1400 x 1050 |
| 25 | 16 | 22 |
| 4:3 | 4:3 | 4:3 |
| FXS[1] | FXS[1] | FXS[1] |
| 370 | 280 | 280 |
| 1,200,000:1 | 1,200,000:1 | 1,200,000:1 |
| 165 | 165 | 165 |
| 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary |
| 24 | 24 | 24 |
| Sense[6] | Sense[6] | Sense[6] |
| 3x24 | 3x24 | 3x24 |
| Spectrometer | Spectrometer | Spectrometer |
| 256 | 256 | 256 |
| LED | LED | LED |
| 6 | 6 | 6 |
| 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 |
| back | back | back |
| manual | manual | manual |
| 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 |
| ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ |
| 2 x dual DVI in/out | 2 x dual DVI in/out | 2 x dual DVI in/out |
| < 1.5 mm \| 0.06 inch[3] | < 2 mm \| 0.08 inch[3] | < 2 mm \| 0.08 inch[3] |
| < 0.2 mm \| 0.008 inch[4] | < 0.2 mm \| 0.008 inch[4] | < 0.2 mm \| 0.008 inch[4] |
| 1,400 | 1,600 | 1,600 |
| 1,050 | 1,200 | 1,200 |
| 899 | 1,023 | 1,023 |
| 101.5 | 131.3 | 131.3 |
| 55.1 | 63 | 63 |
| 41.3 | 47.2 | 47.2 |
| 35.4 | 40.3 | 40.3 |
| 224 | 289 | 289 |

# Lamp video walls
## OV-D2 series

| SPECIFICATIONS | | OV-508 | OV-513 | OV-515 | OV-708 |
|---|---|---|---|---|---|
| | |  |  |  |  |
| | | XGA | SXGA | SXGA+ | XGA |
| Screen diagonal | inch | 50 | 50 | 50 | 70 |
| Resolution | pixel | 1024 x 768 | 1280 x 1024 | 1400 x 1050 | 1024 x 768 |
| Absolute resolution | dpi | 26 | 33 | 36 | 19 |
| Aspect ratio | | 4:3 | 5:4 | 4:3 | 4:3 |
| Screen | type | HVA[1] | HVA[1] | HVA[1] | HVA[1] |
| Brightness on screen | Cd/m² 120 \| 132 \| 180 | 290 \| 320 \| 435 | 270 \| 300 \| 405 | 325 \| 355 \| 485 | 145 \| 160 \| 215 |
| Contrast | dynamic | 4,800:1 | 5,100:1 | 5,100:1 | 4,800:1 |
| Max color gamut | % of EBU | 100 | 100 | 100 | 100 |
| White point | K | 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) |
| Color sequence | x frame rate | 3 | 3 | 3 | 3 |
| Color control | type | Sense[6] | Sense[6] | Sense[6] | Sense[6] |
| Internal color processing | bit | 3x13 | 3x13 | 3x13 | 3x13 |
| Color measurement device | type | color sensor | color sensor | color sensor | color sensor |
| Color measurement | color data points | 3 | 3 | 3 | 3 |
| Light source | type | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 |
| Redundancy of lightsource | n-fold | dual | dual | dual | dual |
| Lifetime of light source | hours 120 \| 132 \| 180 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 |
| Access mode | type | back | back | back | back |
| Geometry alignment | type | manual | manual | manual | manual |
| Power consumption | W 120 \| 132 \| 180 | 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 |
| On board web server | | ✓ | ✓ | ✓ | ✓ |
| Wall control PC | | ✓ | ✓ | ✓ | ✓ |
| Web service API | | ✓ | ✓ | ✓ | ✓ |
| Connectivity | | 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out |
| | | 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out |
| Screen gap | Modular screen | < 0.8 mm/0.03 inch | < 0.8 mm/0.03 inch | < 0.8 mm/0.03 inch | < 1.5 mm/0.06 inch[4] |
| | Stitched screen | 0 mm/0 inch[2] | 0 mm/0 inch[2] | 0 mm/0 inch[2] | < 0.2 mm/0.008 inch[3] |
| Screen width | mm | 1,000 | 1,000 | 1,000 | 1,400 |
| Screen height | mm | 750 | 800 | 750 | 1,050 |
| Depth | mm | 734 | 715 | 734 | 899 |
| Weight | kg | 65 | 68.5 | 65 | 101.5 |
| Screen width | inch | 39.4 | 39.4 | 39.4 | 55.1 |
| Screen height | inch | 29.5 | 29.5 | 29.5 | 41.3 |
| Depth | inch | 28.9 | 28.1 | 28.9 | 35.4 |
| Weight | lbs | 143 | 151 | 143 | 224 |

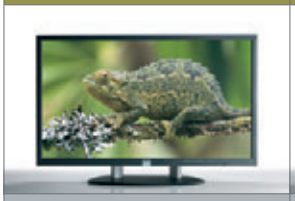
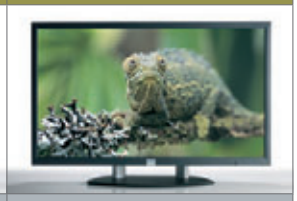
[1] available alternative screens for video walls: HVA standard (normal brightness, excellent viewing angle), HVM (medium brightness, wide viewing angle), HVX (high brightness, medium viewing angle)
[2] ZeroGap technology
[3] by patented stitch concept
[4] for optimal modular screen

| OV-713 | OV-715 | OV-808 | OV-815 | OV-1008 | OV-1015 |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| SXGA | SXGA+ | XGA | SXGA+ | XGA | SXGA+ |
| 70 | 70 | 80 | 80 | 100 | 100 |
| 1280 x 1024 | 1400 x 1050 | 1024 x 768 | 1400 x 1050 | 1024 x 768 | 1400 x 1050 |
| 23 | 25 | 16 | 22 | 13 | 17.5 |
| 5:4 | 4:3 | 4:3 | 4:3 | 4:3 | 4:3 |
| HVA[1] | HVA[1] | HVA[1] | HVA[1] | HVA[1] | HVA[1] |
| 140 \| 150 \| 165 | 170 \| 185 \| 245 | 115 \| 125 \| 170 | 125 \| 140 \| 190 | 165 \| 180 \| 250 | 185 \| 206 \| 280 |
| 5,100:1 | 5,100:1 | 4,800:1 | 5,100:1 | 4,800:1 | 5,100:1 |
| 100 | 100 | 100 | 100 | 100 | 100 |
| 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) |
| 3 | 3 | 3 | 3 | 3 | 3 |
| Sense[6] | Sense[6] | Sense[6] | Sense[6] | Sense[6] | Sense[6] |
| 3x13 | 3x13 | 3x13 | 3x13 | 3x13 | 3x13 |
| color sensor | color sensor | color sensor | color sensor | color sensor | color sensor |
| 3 | 3 | 3 | 3 | 3 | 3 |
| UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 |
| dual | dual | dual | dual | dual | dual |
| 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 |
| back | back | back | back | back | back |
| manual | manual | manual | manual | manual | manual |
| 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 |
| ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out |
| 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out |
| < 1.5 mm/0.06 inch[4] | < 1.5 mm/0.06 inch[4] | | | | |
| < 0.2 mm/0.008 inch[3] | < 0.2 mm/0.008 inch[3] | < 0.2 mm/0.008 inch[3] | < 0.2 mm/0.008 inch[3] | < 0.2 mm/0.008 inch[3] | < 0.2 mm/0.008 inch[3] |
| 1,400 | 1,400 | 1,600 | 1,600 | 2,032 | 2,032 |
| 1,120 | 1,050 | 1,200 | 1,200 | 1,524 | 1,524 |
| 973 | 899 | 1,023 | 1,023 | 1,400 | 1,400 |
| 108.5 | 101.5 | 131.3 | 131.3 | 273.5 | 273.5 |
| 55.1 | 55.1 | 63 | 63 | 80 | 80 |
| 44.1 | 41.3 | 47.2 | 47.2 | 60.2 | 60.2 |
| 38.3 | 35.4 | 40.3 | 40.3 | 55.1 | 55.1 |
| 239 | 224 | 289 | 289 | 602 | 602 |

# Narrow bezel
# LCD video walls
## NSL series

| SPECIFICATIONS | | NSL-4601 | NSL-5521 |
|---|---|---|---|
| | |  |  |
| | | WXGA | Full HD |
| Backlight | Type | CCFL | Direct LED |
| Screen diagonal | Inch | 46 | 55 |
| Resolution | Pixel | 1366 x 768 | 1920 x 1080 |
| Absolute resolution | dpi | 35 | 40 |
| Brightness | typ \| max Cd/m² | 500 \| 700 | 500 \| 700 |
| Screen technology | Type | LCD | LCD |
| Contrast | | 3,000:1 (typ.) | 3,000:1 (typ.) |
| Internal color processing | | 10 bit color resolution | 10 bit color resolution |
| Light source lifetime | hours | 50,000 | 50,000 |
| Power consumption | typ \| max W | 130 \| 300 | 130 \| 300 |
| Wall control | | NSL Control Manager software | NSL Control Manager software |
| Connectivity | | VGA in/out | VGA in/out |
| | | DVI-D in/out | DVI-D in/out with HDCP |
| | | HDMI input | HDMI type A in/out |
| | | Component in/out | |
| | | S-video in/out | S-video in/out |
| | | CVBS in/out (PAL/NTSC) | CVBS in/out (PAL/NTSC) |
| Screen gap | mm \| inch | < 6.7 \| 0.264 | 1.9 \| 0.075 and 3.8 \| 0.15 |
| Screen width | mm | 1,026.1 | 1,215.3 |
| Screen height | mm | 580.2 | 686.1 |
| Depth | mm | 98 | 98.2 |
| Weight (net/gross) | kg | 29.8 \| 35.2 | 35 \| 48.5 |
| Screen width | inch | 40.4 | 47.8 |
| Screen height | inch | 22.8 | 27 |
| Depth | inch | 3.9 | 3.9 |
| Weight (net/gross) | lbs | 65.7 \| 77.6 | 77.3 \| 107.1 |
| Regulation compliance | Type | CE, CCC, ROHS, TUV, cTUVus | CE, CCC, ROHS, TUV, cTUVus, WEEE |
| Operating temp (min-max) | °C | 5-40 | 0-40 |
| Operating temp (min-max) | °F | 41-104 | 32-104 |
| Humidity | % | 20-80% non-condensing | 20-80% non-condensing |

# Personal video walls
## LDX series

| SPECIFICATIONS | | LDX-46 | LDX-55 |
|---|---|---|---|
| | |  |  |
| | | Full HD | Full HD |
| Backlight | Type | Edge LED | Edge LED |
| Screen diagonal | Inch | 46 | 55 |
| Resolution | Pixel | 1920 x 1080 | 1920 x 1080 |
| Absolute resolution | dpi | 48 | 40 |
| Aspect ratio | | 16:9 | 16:9 |
| Brightness | $Cd/m^2$ | 600 | 600 |
| Screen technology | Type | LCD | LCD |
| Contrast | | 3,000:1 (typ.) | 4,000:1 (typ.) |
| Light source lifetime | hours | 50,000 | 50,000 |
| Power consumption | typ \| max W | 120 \| 220 | 130 \| 240 |
| Wall control | | NSL Control Manager software | NSL Control Manager software |
| Inputs and outputs | | Single hub DVI-D in/out | Single hub DVI-D in/out |
| | | HDMI type A | HDMI type A |
| | | 2x HD-SDI in/out | 2x HD-SDI in/out |
| | | CVBS in/out | CVBS in/out |
| | | VGA in/out | VGA in/out |
| | | 3x component video in/out | 3x component video in/out |
| | | S-video in/out | S-video in/out |
| Screen width | mm | 1,075 | 1,267 |
| Screen height | mm | 639 | 749 |
| Depth | mm | 85 | 81 |
| Weight (net/gross) | kg | 28 | 35 |
| Screen width | inch | 42.3 | 49.9 |
| Screen height | inch | 25.2 | 29.5 |
| Depth | inch | 3.3 | 3.2 |
| Weight (net/gross) | lbs | 61.8 | 77.3 |
| Regulation compliance | Type | CE, TÜV, cTÜVus, CCC, ROHS, WEEE | CE, TÜV, cTÜVus, CCC, ROHS, WEEE |
| Operating temp (min-max) | °C | 0-40 | 0-40 |
| Operating temp (min-max) | °F | 32-104 | 32-104 |
| Humidity | % | 10-90% non-condensing | 10-90% non-condensing |

| | Screen size | | | | | | Technology | | |
|---|---|---|---|---|---|---|---|---|---|
| SERIES | 46 inch | 50 inch | 55 inch | 70 inch | 80 inch | 100 inch | lamp-lit | LED-lit | LCD |
| OL | 16:9 LED VIDEO WALLS | | | | | | | | |
| **OL-510** | | ✔ | | | | | | ✔ | |
| **OL-521** | | ✔ | | | | | | ✔ | |
| **OL-710** | | | | ✔ | | | | ✔ | |
| **OL-721** | | | | ✔ | | | | ✔ | |
| OLF | 16:9 LED VIDEO WALLS WITH FRONT ACCESS | | | | | | | | |
| **OLF-510** | | ✔ | | | | | | ✔ | |
| **OLF-521** | | ✔ | | | | | | ✔ | |
| **OLF-710** | | | | ✔ | | | | ✔ | |
| **OLF-721** | | | | ✔ | | | | ✔ | |
| OLS | 16:9 3D LED VIDEO WALLS | | | | | | | | |
| **OLS-521** | | ✔ | | | | | | ✔ | |
| **OLSF-521** | | ✔ | | | | | | ✔ | |
| **OLS-721** | | | | ✔ | | | | ✔ | |
| **OLSF-721** | | | | ✔ | | | | ✔ | |
| OVL | 4:3 LED VIDEO WALLS | | | | | | | | |
| **OVL-508** | | ✔ | | | | | | ✔ | |
| **OVL-515** | | ✔ | | | | | | ✔ | |
| **OVL-708** | | | | ✔ | | | | ✔ | |
| **OVL-715** | | | | ✔ | | | | ✔ | |
| **OVL-808** | | | | | ✔ | | | ✔ | |
| **OVL-815** | | | | | ✔ | | | ✔ | |
| OV-D2 | LAMP VIDEO WALLS | | | | | | | | |
| **OV-508** | | ✔ | | | | | ✔ | | |
| **OV-513** | | ✔ | | | | | ✔ | | |
| **OV-515** | | ✔ | | | | | ✔ | | |
| **OV-708** | | | | ✔ | | | ✔ | | |
| **OV-713** | | | | ✔ | | | ✔ | | |
| **OV-715** | | | | ✔ | | | ✔ | | |
| **OV-1008** | | | | | | ✔ | ✔ | | |
| **OV-1015** | | | | | | ✔ | ✔ | | |
| NSL | LCD VIDEO WALLS: NARROW-BEZEL LCD | | | | | | | | |
| **NSL-4601** | ✔ | | | | | | | | ✔ |
| **NSL-5521** | | | ✔ | | | | | | ✔ |
| LDX | PERSONAL VIDEO WALLS: WIDE SCREEN LCD DISPLAYS | | | | | | | | |
| **LDX-46** | ✔ | | | | | | | | ✔ |
| **LDX-55** | | | ✔ | | | | | | ✔ |

| Ratio | | | Resolution | | | | | Access | 3D |
|---|---|---|---|---|---|---|---|---|---|
| 4:3 | 5:4 | 16:9 | XGA | WXGA | SXGA | SXGA+ | full HD | front | stereo |
| | | | | | | | | | |
| | | ✔ | | ✔ | | | | | |
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# Icons explained

Throughout this catalog, you'll often find icons next to the pictures of our products. In case of doubt, please refer to the list below for their explanation:




3D stereoscopy option




Redundant lamp technology




Sense[6] technology with spectrometer for higher accuracy




Screen aspect ratio of 4:3




Front accessible




SXGA+ resolution




Screen aspect ratio of 16:9




Full HD resolution




SXGA+ resolution




Designed for 24/7 mission critical applications




Additional HD-SDI inputs




WXGA resolution




46" screen




Screen with LCD technology




XGA resolution




55" screen




LED-lit rear-projection technology




Ultra-wide viewing angle




Auto align




Redundant




Web server for remote access




Compact




Scalable technology allowing bigger video walls




Liquid cooled engine




Sense[6] auto-calibration of colors and brightness

## Find the video wall display you need in just two clicks!

Go to our online product finder at

www.barco.com/en/controlrooms/videowall_productfinder



# About Barco

Barco designs, manufactures and markets innovative hard- and software visualization solutions for a variety of applications, such as traffic management, surveillance, command and control, broadcasting and telecom networks, and utilities and process control. With Barco's visualization solutions, control center operators are offered a real-time collaborative work experience for monitoring, response dispatching and coordination, access and flow control, recording, and overall systems control for 24/7 operations.

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TEAM - 115 - 2018

Bogotá D.C. 19 de Noviembre del 2018

**Señores**
**SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO**
**Atn. Dr. JOSÉ LUIS SALAZAR LÓPEZ**
**DIRECTOR DE NUEVAS CREACIONES**

*Asunto: Respuesta Requerimiento de Fondo Oficio N° 11785, del Expediente N° NC2017/0003231- Patente de Modelo de Utilidad – SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV*

Atento saludo,

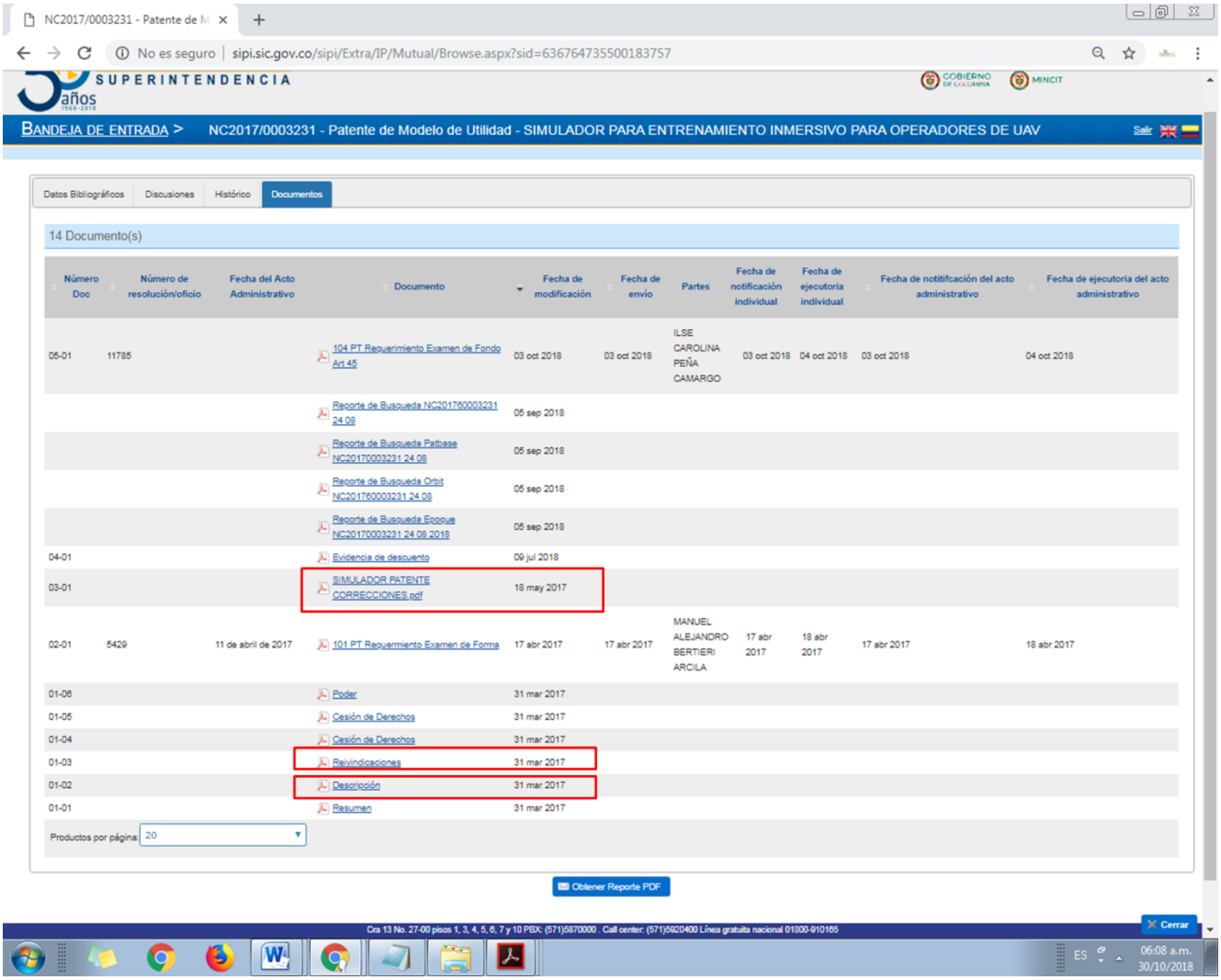
En mi condición de apoderada de la empresa ADVECTOR S.A.S. NIT 900.072.284-8 y actuando como abogada de la empresa TEAM Ingeniería de Conocimiento Ltda, doy respuesta al oficio relacionado en el asunto, según como sigue en el presente documento. Con lo anterior se da cumplimiento al artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina específicamente en lo relacionado con el cumplimiento de los plazos estipulados para ello.

**1. Documentos estudiados**

El requerimiento de fondo No. 11785, cita como documentos estudiados la siguiente relación.

- Descripción NC2017/0003231 31 de marzo de 2017
- Reivindicaciones: NC2017/0003231 31 de marzo de 2017
- Reivindicaciones: NC2017/0003231 18 de mayo de 2017
- Dibujos: NC2017/0003231 31 de marzo de 2017
- Respuesta del solicitante: NC2017/0003231 18 de mayo de 2017

De acuerdo con la información disponible en el Sistema de Propiedad Industrial de la Superintendencia de Industria y Comercio SIPI – SIC al 30 de Octubre de 2018, se observa la siguiente correspondencia:




Por lo anterior, con relación a la lista de documentos estudiados se encuentra correspondencia a tres archivos digitales en formato pdf, identificados con números de documento 01-02, 01-03 y 03 -01, que corresponden a los nombres: Descripción, Reivindicaciones y SIMULADOR PATENTES CORRECCIONES respectivamente. Los documentos 01-02 y 01-03 se subieron a la plataforma el día 31 de Marzo de 2017, mientras que el documento 03-01 se subió a la plataforma el día 18 de Mayo de 2017.

Es pertinente manifestar que a fecha del 25 de Abril de 2018, la Dirección de Nuevas Creaciones acepta el cambio de poder tramitado bajo el radicado número IT2018/0003779, en razón por la cual a partir de esta fecha, actúo como abogada apoderada en el presente proceso.

**2. Modificaciones presentadas (Art. 34 D 486 y Art. 19, 22 y 34 PCT)**

Conforme a la aceptación de las modificaciones presentadas por parte de la Superintendencia de Industria y Comercio, se entiende que las reivindicaciones y texto conjunto del trámite de patente corresponden a la información presentada el día 18 de Mayo de 2018. Dichas modificaciones fueron entregadas en el documento SIMULADOR PATENTE CORRECCIONES.pdf identificado con el número de documento 03-01 en el SIPI-SIC.

**3. Objeto de la invención**

Respecto de la Clasificación Internacional de Patentes, se reciben a conformidad las clasificaciones **G09B 9/00** - Simuladores para la enseñanza o el entrenamiento y **G09B 9/24** - que comprende la presentación o el registro de la trayectoria de vuelo simulado.

Las clasificaciones **G09B 9/10** y **G09B 9/42**, se objetan, por las siguientes razones:

- **G09B 9/10 - con medios de simulación de las fuerzas generadas por el vuelo o por los motores sobre el ocupante de la aeronave**

  El campo técnico en el cual se inscribe la invención bajo estudio, no trata de aeronaves tripuladas. Por lo cual no existe "*ocupante de la aeronave*", ni fuerzas generadas por el vuelo o por los motores sobre el ocupante de la aeronave. Como se detalla posteriormente en este documento, la invención se circunscribe a la simulación de vuelo de aeronaves NO tripuladas y operadas a distancia.

- **G09B 9/42 - Aeronaves, simuladores de aeronaves o medios que les son conectados, desplazándose sobre el suelo o sobre el agua durante el entrenamiento de vuelo simulado**

  El campo técnico en el cual se inscribe la invención bajo estudio, no trata de "*simuladores de aeronaves*". La simulación a la cual se refiere la presente invención, trata del vuelo u operación de aeronaves NO tripuladas. La invención bajo estudio no simula al vehículo aéreo NO tripulado (Unmanned Aerial Vehicle UAV) popularmente conocido como DRONE, dado que por sus características físicas y de volumen, no son tripulados.

**4. De la solicitud de patente**

Sobre las reivindicaciones se precisa:

- La *reivindicación 1* queda de acuerdo con el siguiente texto, sustituyendo la expresión "*programa informático*":

Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual, con una estructura poliédrica (1), para la representación de una vista del entorno del piloto en ambiente tipo inmersivo que integra información: a) del control de la aeronave, b) la estación en tierra y c) la estación de control del simulador; posee modelos dinámicos de aeronaves no tripuladas, escenarios y ambientes de realidad virtual, con condiciones de temperatura, viento, nubosidad, iluminación, humedad, precipitación y demás condiciones específicas del entrenamiento de vuelo no tripulado desde tierra; contiene señales procesadas y actualizadas; contiene datos de respuesta transferidos a la estación de control, la estación en tierra y los sistemas de proyección de video y audio envolvente.

- Se elimina la *reivindicación 7*, toda vez que la descripción detallada de la reivindicación 1 cubre la protección sobre la invención en estudio.

El texto final de las reivindicaciones no modifica la materia patentable, ni extiende el alcance de estas, por lo cual no se modifica la descripción técnica, no se modifica el alcance técnico ni se modifica la materia patentable. La descripción que se entrega, especifica la invención sin que por ello, esta se modifique.

El nuevo texto no implica la ampliación o modificación de la materia patentable, toda vez que la descripción de las actividades realizadas por el programa informático o soporte lógico, solamente detallada un componente ya existente de la invención.

Se entrega como anexo a la presente comunicación, el capítulo reivindicatorio final.

**5. Determinación del Estado de la Técnica**

Respecto del document Ítem D1 “Rear-projected dome display Welcome to the real world” se realizan las siguientes precisiones:

a. El enlace web citado en el requerimiento No. 11785 no arroja la información relacionada dentro de dicho requerimiento, a la fecha de consulta 29 de Octubre de 2018, se encontró el mensaje “404: Oops, Something Isn´t Right Here”, como se observa en los archivos adjuntos.

b. A fin de observar detalladamente la información del documento ítem D1, se buscó en el motor de internet Google el título del documento citado, encontrando el archivo que se adjunta a la presente respuesta de requerimiento de fondo.

c. Toda vez que el documento es un brochure de la organización BARCO, es claro que la información pertinente para el análisis del Estado de la Técnica es la contenida de las páginas 1 a la 8, dado que es en estas páginas donde se entrega información sobre simuladores de vuelo de aeronaves tripuladas. A partir de la página 9, el catálogo de productos relaciona otros productos de la organización, que no componen el simulador de vuelo citado. Adicionalmente, no es posible inferir que la totalidad de los elementos del catálogo hagan parte del simulador de vuelo para vehículos tripulados.

**6. Examen de Patentabilidad**

Con relación al documento “Rear-projected dome display Welcome to the real world” es pertinente advertir, de manera general, que el artefacto descrito en dicho documento está diseñado para el entrenamiento de pilotos, que se desempeñan comandando aviones tripulados. Las expresiones “pilots can gain experience that is crucial for life-critical night missions” y “simulation as well as systems for naval, air traffic control, vehicle and arms training”, claramente describen las actividades referidas a entrenamiento de navegación tripulada, como condiciones críticas de vida en navegación nocturna, sistemas navales, control de tráfico aéreo y manejo de armamento.

Como se advierte en el título de solicitud de la patente, la invención presente está diseñada para la aplicación exclusiva de vehículos aéreos NO tripulados (Unmanned Aerial Vehicle UAV), toda vez que el artefacto se compone de elementos físicos (hardware) y un sistema de comandos internos ejecutados a través de comandos informáticos que permite simular condiciones de vuelo especiales y específicas para UAVs. Esta distinción va más allá de la simple emisión de imágenes que pudieran ser comunes para ambos desarrollos, ya que, las condiciones de vuelo y manejo para un UAV no hacen parte del campo tecnológico de los vehículos tripulados. Es comprensible y evidente que la competencia técnica referida al vuelo, navegabilidad y pilotaje de UAVs es específica y particular; por lo cual, la invención descrita en la solicitud NC2017/0003231 no hace parte del estado de la técnica descrita en el documento “Rear-projected dome display Welcome to the real world”.

Entre otras razones, se expresan a continuación las consideraciones tecnológicas para sustentar que la descripción del *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV* no está incluida en el documento “Rear-projected dome display Welcome to the real world”:

a) A fin de precisar la delimitación de la tecnología en estudio, se cita la definición de UAV de Addati y Pérez (2014): “*El UAV (Unmanned Aerial Vehicle)…de uso civil es una aeronave a propulsión, no tripulada y reutilizable que opera mediante control a distancia y autónomamente*” (Disponible en: https://www.econstor.eu/handle/10419/130802). Dada la definición de UAV, es comprensible que las condiciones de no tripulación y operación a control a distancia de que trata la invención en estudio, la excluyen del ámbito tecnológico del aparato descrito en el documento “Rear-projected dome display Welcome to the real world”.

b) El “RP 360 Flight Simulator Dome” fabricado por Barco, es un simulador de vuelo para aeronaves tripuladas, principalmente de combate, en el cual se ubica al piloto en una silla en medio del domo, con la opción de girar la cabeza y ver lo que se encuentra detrás de él. Este simulador está diseñando para representar el entorno de un piloto sentado en la cabina de un avión es decir representa el movimiento del avión en el espacio.

c) El “Simulador para entrenamiento inmersivo para operadores de UAV” ubica al operador en un ambiente abierto, recreando condiciones de temperatura, viento, iluminación, precipitación, entre otras, que se encuentran en un escenario abierto o en campo. La representación visual, sonora y sensorial es completamente diferente por cuanto el piloto está parado en la tierra y no se mueve con la aeronave, es decir la aeronave se representa gráficamente como un objeto que se mueve en el escenario proyectado en el domo y el operador o piloto lo sigue con el movimiento de su cabeza o incluso de su cuerpo para no perderlo de vista, tal como ocurre en las condiciones reales.

De manera particular y específica para dar respuesta a la Tabla 1. Comparación de las características Esenciales con las del Estado de la Técnica, se entrega la Tabla A. Respuesta a Comparación de las características Esenciales con las del Estado de la Técnica, a continuación.

**Tabla A. Respuesta a Comparación de las características Esenciales con las del Estado de la Técnica**

| **Características Esenciales** | **D1** | **Respuesta** |
|---|---|---|
| Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual. | La pantalla domo trasera proyectada de Barco, la RP-360, crea un entorno de 360° para entrenamiento de vuelo. Este domo es una respuesta a la necesidad cada vez mayor de reducir costos de capacitación, al incorporar más tareas de capacitación a la capacitación en tierra. Esto ahora es posible gracias al nivel mejorado de realismo (Pág. 2, Párr. 1). | En las características esenciales es determinante la expresión “**aeronaves piloteadas a distancia**”, ya que las condiciones de entrenamiento para pilotos de aeronaves piloteadas a distancia son radicalmente diferentes a las condiciones de entrenamiento para pilotos de naves tripuladas. Es decir que la información del documento D1, no hace parte de las características esenciales de la invención.<br><br>En respuesta al numeral 4 del requerimiento de fondo No. 11785 y en respuesta al presente numeral del mismo requerimiento, se entrega una redacción final de reivindicaciones que especifica y detalla las características de navegación **a distancia** de las que se compone la invención *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV.*<br><br>Dichas características se han especificado en los documentos estudiados que se mencionan en el numeral 1 del requerimiento No. 11785, toda vez que son intrínsecas a la operación y entrenamiento de vuelo de aparatos UAV. |

| | | |
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| Plataforma tipo domo (1). | Pantalla de domo retro proyectada bienvenido al mundo real (Pág. 1, Titulo) | Se remplaza la expresión "*domo*", por estructura poliédrica. Esta modificación es coincidente en la conformación geométrica y arquitectónica. |
| Con un componente de proyección (2) para la percepción del movimiento tridimensional de la plataforma (1), que comprende varias, en particular video proyectores (2) ajustables activamente en longitud y fijadas a través de articulaciones con grados de libertad a la plataforma (1) para enfocar en el domo (1). | Ya sea que esté en el sector de petróleo y gas, la industria automotriz, ingeniería virtual de investigación científica, Galaxy NW de Barco la serie hará que sus esfuerzos de colaboración sean más rápidos y eficientes, lo que permitirá una mejor toma de decisiones, gracias al XDS Suite de software Control Center. El XDS Control Center de Barco se ejecuta desde la computadora de su empresa dedicada que está conectada al proyector, y no requiere sistemas de gestión de visualización adicionales en caso de que utilice una **configuración de uno o dos proyectores (**Pág. 19, Párr. 1). | Se elimina de la reivindicación 1 información referida a proyectores.<br><br>En lo referido al software de control, se ha sustituido la expresión "*programa informático*" por las características específicas del simulador, de manera particular en lo referido a la simulación de vuelo de aeronaves No tripuladas. |
| Para la representación de una vista del entorno del piloto del vehículo en ambiente tipo inmersivo. | El RP-360 ofrece la calidad de imagen más precisa en el mercado hoy en día. Con menos proyectores, el sistema logra resultados superiores, MTBF largo, un campo de visión realista optimizado, detección realista de objetivos terrestres y terrestres, reconocimiento e identificación, contraste de pantalla mejorado y escenarios avanzados para el entrenamiento nocturno y diurno (Pág. 2, Párr. 2). | Es claro que la reivindicación 1 desde el inicio de su enunciado especifica que el ambiente inmersivo se suscribe explícitamente al entrenamiento de vehículos aéreos **no** tripulados (UAV) y es también claro por la reivindicación 1, que las características del simulador como unidad inventiva exceden la simple calidad visual. Es claro, por las explicaciones introducidas en este documento, que la información del documento D1 no incluye la descripción de la invención a proteger bajo el registro No. NC2017/0003231.<br><br>De igual manera, al observar la unidad patentable en el conjunto de reivindicaciones, se hace énfasis en que se describen componentes de audio, humedad, precipitación y otras condiciones de vuelo no tripulado. De manera que, la descripción de la invención excede las características del aparato Barco descrito en el documento D1 y por lo mismo no hace parte del Estado de la Técnica.<br><br>Es fundamental exponer que el ambiente inmersivo, dada la técnica no tripulada, requiere elementos específicos del campo abierto, como el sonido, la sensación térmica, la precipitación, la |

| | | |
|---|---|---|
| | | iluminación y otras condiciones ambientales. Dichas condiciones deben actuar conjuntamente con información de la aeronave al ser tripulada, los modelos dinámicos, los comandos, la información de la estación en tierra; a fin de recrear y simular con alto grado de precisión, condiciones reales a las que se somete un piloto de UAV.<br><br>Todo lo anterior está descrito en el capítulo reivindicatorio, en su texto final. Con lo cual es evidente que la expresión "*ambiente inmersivo*" en el contexto tecnológico de los UAV no se restringe a las mejoras en la calidad de imagen, sino que requieren el tratamiento sincrónico de condiciones ambientales y de operación. |
| Con al menos un componente de programa informático de cálculo de situaciones de tipo real y eventuales que se presentan en campo. | La cartera de Barco para el mercado de salas de control consiste en equipos de visualización, controladores y software. Al unir estos componentes en conceptos totales, los usuarios descubren el verdadero poder de nuestros productos. El resultado: intercambio de información más fácil, más rápido comunicación y rendimiento óptimo de las salas de control (Pág. 30, Párr. 1). | Como se ha mencionado anteriormente, los comandos desarrollados por el *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV* están suscritos específicamente para entrenamiento de vehículos aéreos no tripulados, mientras que la información referida en el documento D1 corresponde a salas de control de vehículos tripulados; por lo tanto no son materia equivalente ni similar.<br><br>En este caso se refiere a salas de control. En una sala de control se monitorean imágenes y vídeo (normalmente para seguridad y defensa) o información de sensores para el monitoreo de plantas industriales. Ninguno de los anteriores tiene relación o con el simulador de UAVs.<br><br>Son dos campos de la técnica diferentes, particulares y explícitamente opuestos.<br><br>Así mismo, en el capítulo reivindicatorio se han detallado las características específicas de la invención, las cuales no están incluidas en el campo técnico de las "*salas de control*". |

A continuación, y como conclusión de la tabla anterior, se entrega el texto definitivo de la reivindicación 1

***Reivindicación 1:*** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual, con una estructura poliédrica (1), para la representación de una vista del entorno del piloto en ambiente tipo inmersivo que integra información: a) del control de la aeronave, b) la estación en tierra y c) la estación de control del simulador; posee modelos dinámicos de aeronaves no tripuladas, escenarios y ambientes de realidad virtual, con condiciones de temperatura, viento, nubosidad, iluminación, humedad, precipitación y demás condiciones específicas del entrenamiento de vuelo no tripulado desde tierra; contiene señales procesadas y actualizadas; contiene datos de respuesta transferidos a la estación de control, la estación en tierra y los sistemas de proyección de video y audio envolvente.

Respecto de los ítems del numeral relacionados con las reivindicaciones dependientes:

- *Reivindicación 2.*

Como se ha entregado en los documentos estudiados, la Figura 2 muestra una estructura, que de acuerdo a la reivindicación 2 se encuentra forrada con una pantalla de superficie lisa sobre la cual se proyecta el video de la simulación, sin que se observen estructuras de soporte. Mientras que en la figura del aparato Barco los tetraedros son externos al domo, no hacen parte de la conformación del domo. A continuación se presentan las imágenes comparadas, para mayor entendimiento de que la información del documento D1, no divulga la invención objeto de estudio.

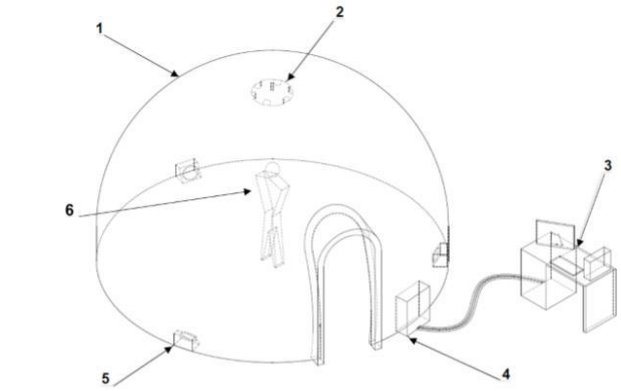
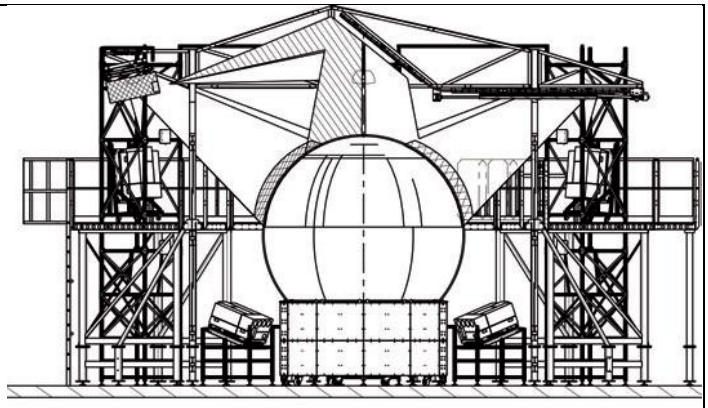



Figura 2. *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV*



Vista aparato Barco. Tomado del documento D1.

Ahora bien, de acuerdo con lo anterior, el texto final de la reivindicación 2 la expresión "*estructura de tetraedros"* se elimina, quedando de la siguiente manera:

***Reivindicación 2:*** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 caracterizado porque comprende una estructura poliédrica forrada con una pantalla de superficie lisa sobre la cual se proyecta el video de la simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

Se entrega como anexo al presente documento, el texto final del título "*Descripción Detallada*" del documento *SIMULADOR PATENTE CORRECCIONES* (Documento mencionado en el numeral 4 del requerimiento 11785). Así mismo, se informa que el elemento (1) de la Figura 2, es un dibujo indicativo de una estructura poliédrica.

- *Reivindicaciones 3, 4, 5 y 6*

Como se ha manifestado en el numeral 5 de la presente respuesta, las características y configuraciones de los productos que se encuentran descritos en el catálogo del documento D1 no pueden entenderse como parte constitutiva del simulador de vuelo de vehículos tripulados. De manera que las características de los proyectores, pantallas o software como productos independientes, no hacen parte del campo técnico bajo estudio. Es decir, las características de un videoproyector, de un sistema de operación de tráfico, vigilancia-comando-control, aisladamente no guardan proporción técnica con el conjunto de elementos físicos, mecánicos y comandos de acción con que cuenta el *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV,* los cuales se han descrito y aclarado en la presente respuesta; así mismo se encuentran en los documentos estudiados en el requerimiento de fondo No. 11785.

Las objeciones presentadas a las reivindicaciones 3, 4, 5 y 6, recaen sobre características independientes de productos excluídos del sistema Barco. Por ejemplo, la expresión "*La excelente calidad de imagen, gracias a la tecnología DLP de tres chips y una brillante salida de luz de 12,000 lúmenes (Galaxy NW-12) o 7,000 lúmenes (Galaxy NW-7), solo se combina con su facilidad de uso y flexibilidad: en un escritorio familiar de Windows, puede visualizar cualquier mezcla de fuentes estéreo 2D y 3D. La serie Galaxy NW es la elección definitiva para cualquier colaboración configuración de pantalla de uno o varios proyectores. Los proyectores rinden su sistema de visualización más estable, más duradera y, sobre todo, ofrece una calidad de imagen superior*", hace referencia, claramente a sistemas de proyección y de equipos de cómputo de escritorio. Lo cual, no tiene relación alguna con el objeto patentable de la solicitud No. NC2017/0003231.

Es además necesario considerar que la reivindicación 1, dota a sus reivindicaciones dependientes de las características particulares de la simulación de vuelo de aeronaves NO tripuladas, con ello, es claro que cada una de las características sirve a ese propósito esencial.

A continuación se presenta el texto final de las reivindicaciones 3, 4, 5 y 6; toda vez que la reivindicación 1 que emana las características esenciales posee un nuevo texto.

**Reivindicación 3:** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un componente de proyección y acondicionamiento inmersivo (2) compuesto por un sistema de video proyectores ajustables y un sistema de recreación de condiciones de temperatura, viento, nubosidad, iluminación, humedad, precipitación y condiciones de vuelo para entrenamiento de pilotos de aeronaves piloteadas a distancia.

**Reivindicación 4:** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un componente de audio que está compuesto por varios parlantes (5) distribuidos de tal manera que se obtenga un sonido envolvente sincronizado con el componente de proyección (2) y video de la simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

**Reivindicación 5:** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un dispositivo de control compuesto por Radio Control (6) y estación de operación (3) en tierra, que contiene la interfaz de dirección y comando de un entrenamiento de pilotos de aeronaves piloteadas a distancia

**Reivindicación 6:** Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un Motor de Simulación (4) que integra audio y video con modelos dinámicos de aeronaves no tripuladas, emitiendo señales de simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

El texto final de las reivindicaciones no modifica la materia patentable, ni extiende el alcance de estas, por lo cual no se modifica la descripción técnica, no se modifica el alcance técnico ni se modifica la materia patentable. La descripción que se entrega, especifica la invención sin que por ello, esta se modifique.

Se entrega como anexo a la presente comunicación, el capítulo reivindicatorio final

Como se ha mostrado en esta respuesta la materia patentable descrita en el *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV,* no hace parte del Estado de la Técnica descrita en el documento "Rear-projected dome display Welcome to the real world", ítem documental D1.

**7. Conclusión**

Toda vez que la invención *SIMULADOR PARA ENTRENAMIENTO INMERSIVO PARA OPERADORES DE UAV:*

a. Cumple con requisitos de patentabilidad de acuerdo con el Artículo 14 de la Decisión 486 de la Comisión de la Comunidad Andina, dado que: es nueva y tiene aplicación industrial.
b. No se encuentra comprendida en el estado de la técnica, según el artículo 16 de la Decisión 486 de la Comisión de la Comunidad Andina
c. Es un modelo de utilidad toda vez que es una "*nueva forma, configuración o disposición de elementos, de algún artefacto, herramienta, instrumento, mecanismo u otro objeto o de alguna parte del mismo, que permita un mejor o diferente funcionamiento, utilización o fabricación del objeto que le incorpore o que le proporcione alguna utilidad, ventaja o efecto técnico que antes no tenía*", según el artículo 81 de la Decisión 486 de la Comisión de la Comunidad Andina

Se solicita dar continuidad al trámite y conceder la patente de modelo de utilidad.

**ANEXOS**

1. Capítulo reivindicatorio
2. Descripción detallada
3. Documento D1a
4. Documento D1b
5. Documento D1c

Agradeciendo su amable atención,



**ILSE CAROLINA PEÑA CAMARGO,**
C.C. 52.885.182 expedida en Bogotá D.C. - T.P. No. 140630 del C. S. de la J.
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Preparación de la respuesta técnica

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Ingeniera Mecánica - Ms. Educación
c.c. 52.898.263 de Bogotá
Consultora - Rep. Legal TEAM Ingeniería de Conocimiento Ltda.

**ADVECTOR S.A.S.**

# ANEXO 1

**CAPÍTULO REIVINDICATORIO**

1. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual, con una estructura poliédrica (1), para la representación de una vista del entorno del piloto en ambiente tipo inmersivo que integra información: a) del control de la aeronave, b) la estación en tierra y c) la estación de control del simulador; posee modelos dinámicos de aeronaves no tripuladas, escenarios y ambientes de realidad virtual, con condiciones de temperatura, viento, nubosidad, iluminación, humedad, precipitación y demás condiciones específicas del entrenamiento de vuelo no tripulado desde tierra; contiene señales procesadas y actualizadas; contiene datos de respuesta transferidos a la estación de control, la estación en tierra y los sistemas de proyección de video y audio envolvente.

2. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 caracterizado porque comprende una estructura poliédrica forrada con una pantalla de superficie lisa sobre la cual se proyecta el video de la simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

3. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un componente de proyección y acondicionamiento inmersivo (2) compuesto por un sistema de video proyectores ajustables y un sistema de recreación de condiciones de temperatura, viento, nubosidad, iluminación, humedad, precipitación y condiciones de vuelo para entrenamiento de pilotos de aeronaves piloteadas a distancia.

4. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un componente de audio que está compuesto por varios parlantes (5) distribuidos de tal manera que se obtenga un sonido envolvente sincronizado con el componente de proyección (2) y video de la simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

5. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un dispositivo de control compuesto por Radio Control (6) y estación de operación (3) en tierra, que contiene la interfaz de dirección y comando de un entrenamiento de pilotos de aeronaves piloteadas a distancia.

6. Aparato simulador de prácticas para el entrenamiento de pilotos de aeronaves piloteadas a distancia en un ambiente de realidad virtual de la reivindicación 1 que comprende un Motor de Simulación (4) que integra audio y video con modelos dinámicos de aeronaves no tripuladas, emitiendo señales de simulación de práctica de entrenamiento de pilotos de aeronaves piloteadas a distancia.

# ANEXO 2

**DESCRIPCIÓN DETALLADA:**

La invención propuesta, plantea el diseño de un aparato de simulación envolvente, principalmente está compuesto por parámetros e información parametrizada permitiendo nutrir y proveer de un alto grado de fidelidad de las condiciones en vuelo y de comportamiento de equipos. Así representando escenarios, situaciones, respuestas del equipo a los controles o comandos por el control manual (radiocontrol). Interpreta los comandos y/o señales emitidas desde el radio control y la estación de tierra. Permitiendo el entrenamiento en situaciones normales y anormales.

Compuesta por una Estación de Operación mediante la cual el instructor coordina el entrenamiento con el piloto, controla el motor de simulación para iniciar los escenarios, situaciones y eventos del entrenamiento y evalúa el desempeño del estudiante. A través de la estación de control el instructor puede también tomar funciones de Controlador de Vuelo en situaciones en las cuales se simula un espacio de tráfico aéreo controlado, generar situaciones anormales y de emergencia. La Estación de Operación está conectada a un Motor de Simulación donde se genera el ambiente virtual. Al Motor de Simulación también se encuentran conectados el radio control y la estación en tierra desde donde el estudiante programa y controla el vuelo de la aeronave, así como los Componentes de Proyección y Audio.

Se compone de una estructura poliédrica (1), que está forrada con una pantalla de superficie lisa sobre la cual se proyecta el video de la simulación. Posee un componente de proyección (2) un componente de audio y acondicionamiento inmersivo, está compuesto por varios parlantes (5) distribuidos de tal manera que se obtenga un sonido envolvente sincronizado con la simulación para hacerla lo más real posible. Uno o dos personas (6), (piloto y operador de la estación en tierra) se ubican la estructura poliédrica con el Radio Control y la estación de tierra desde donde efectúan la operación de la aeronave en el ambiente simulado. La aeronave vuela alrededor de ellos siguiendo los comandos del piloto y operador de la Estación en Tierra y las situaciones de la simulación.

Las señales viajan desde el Radio Control y la Estación en Tierra hasta el Motor de Simulación (4), diseñado para emular los distintos escenarios y con base en parámetros tomados en campo. Cuenta con un componente de ventilación para brindar refrigeración, asegurándose un flujo de aire adecuado. El motor de simulación va conectado a su vez a la Estación de Operación (3), en la cual se encuentra la interfaz para dirigir todo el simulador.

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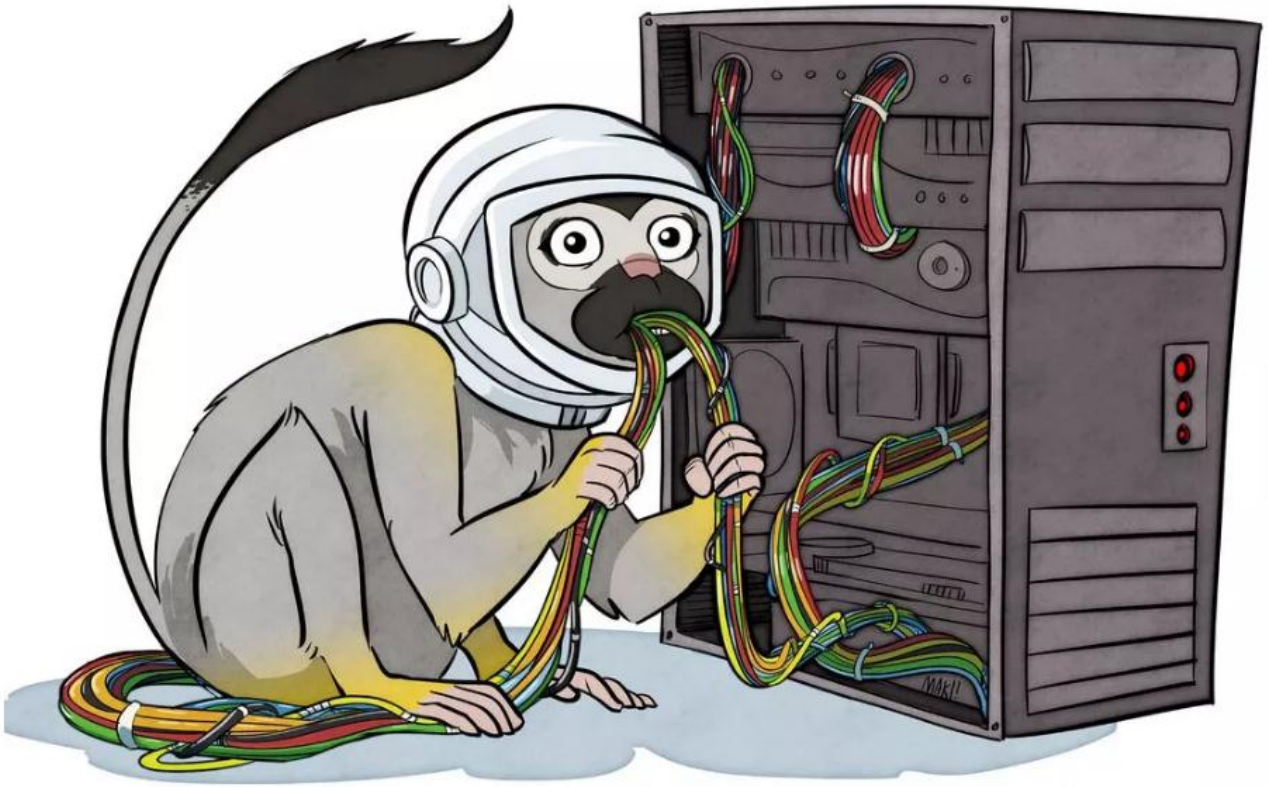
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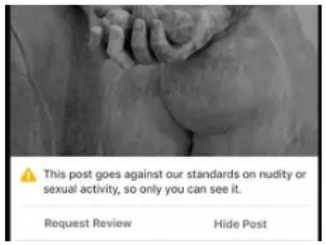

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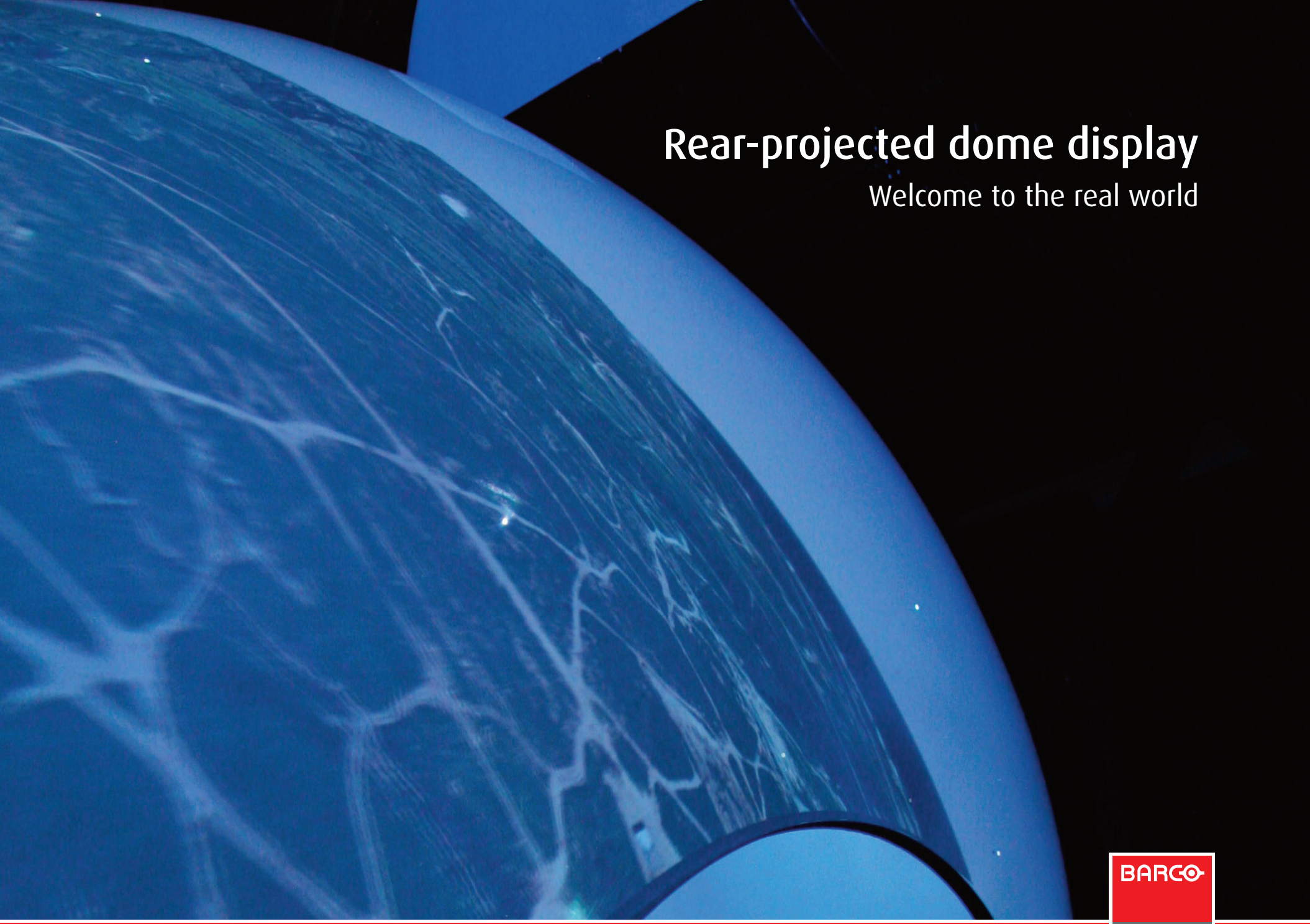
*By Jillian Mock*



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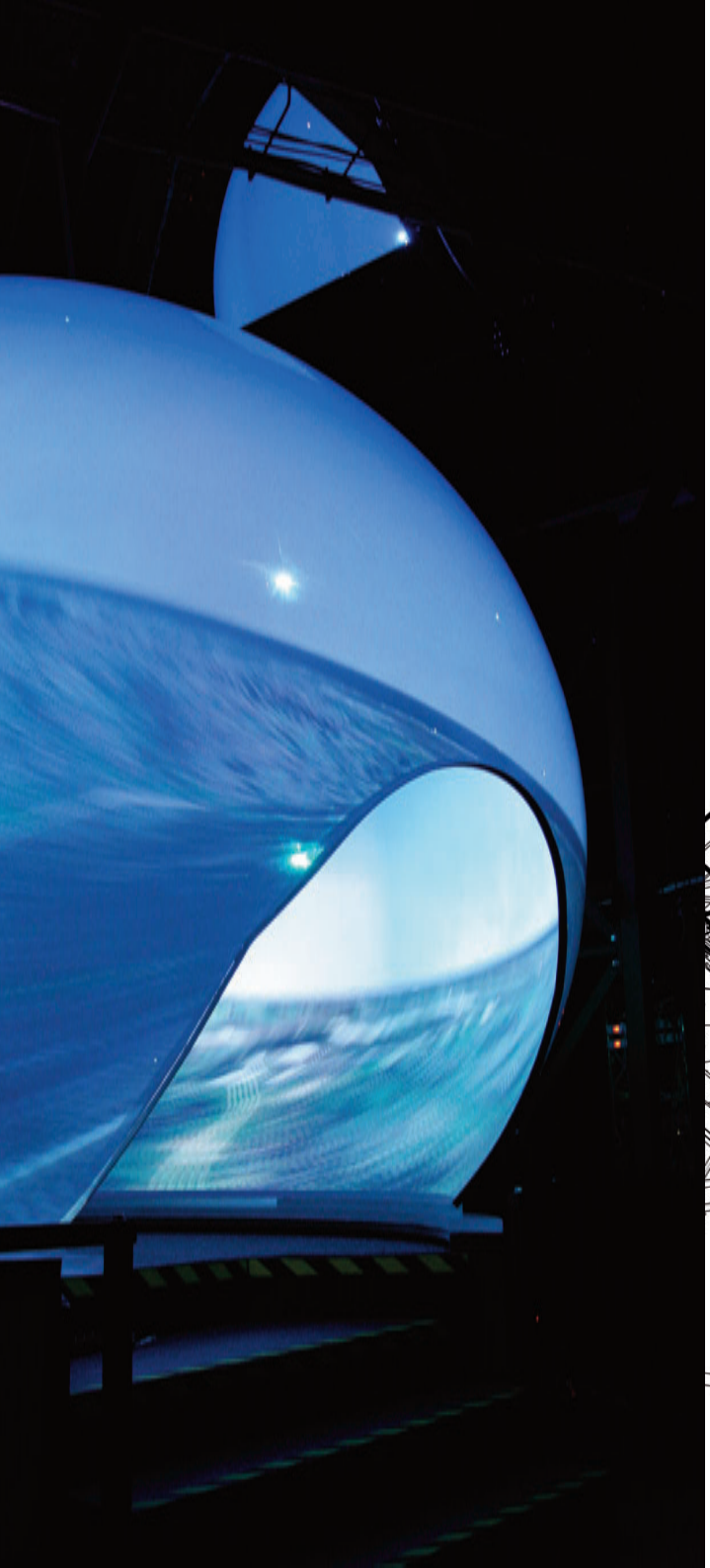


# Rear-projected dome display

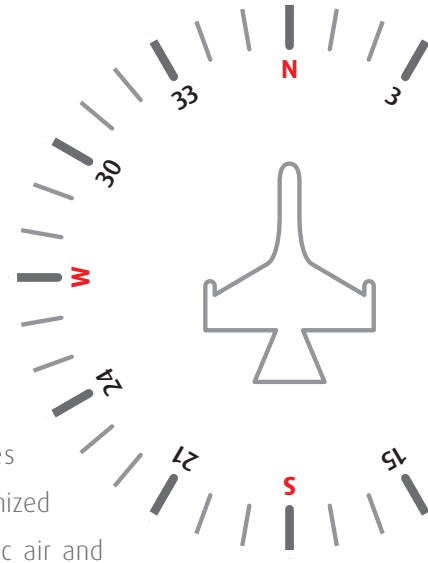
## Welcome to the real world

BARCO

Visibly yours

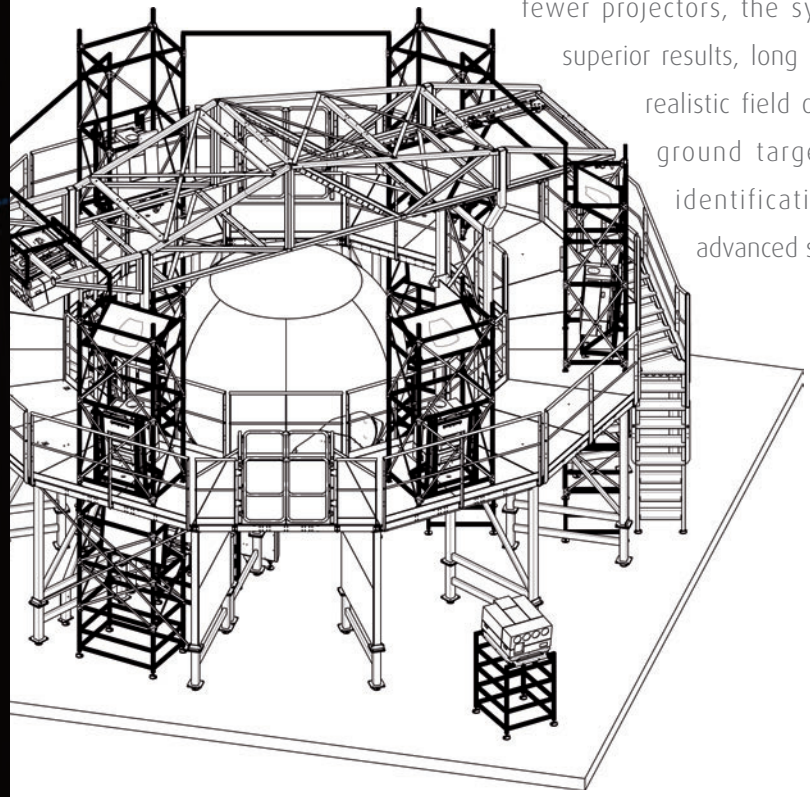


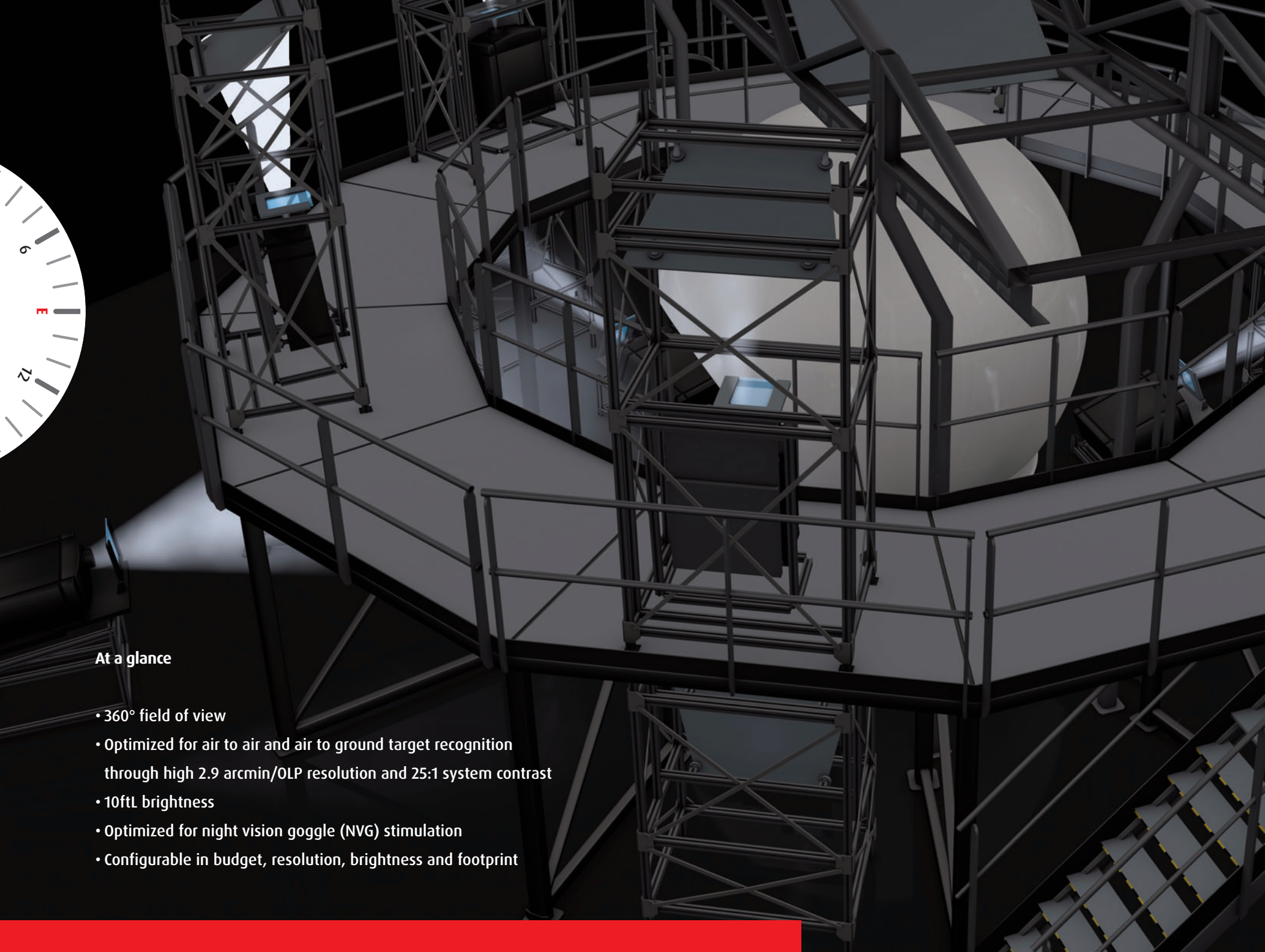
# Rear-projected dome display




Barco's rear-projected dome display – the RP-360 – creates a **360° environment** for flight training. This dome is a response to the ever-growing **need to reduce training costs**, by bringing more training tasks to ground-based training systems. This is now possible thanks to the improved level of realism.

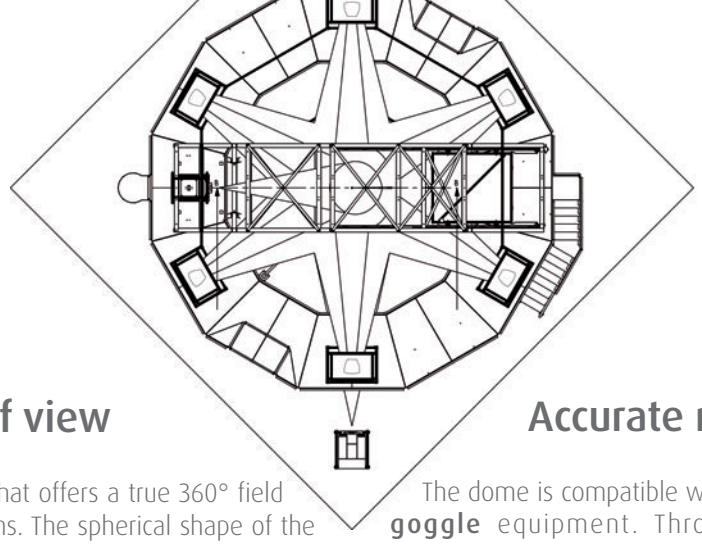
The RP-360 offers the most accurate image quality on the market today. With fewer projectors, the system achieves superior results, long MTBF, an optimized realistic field of view, realistic air and ground target detection, recognition and identification, improved display contrast and advanced scenarios for both night and day training.





**At a glance**

- 360° field of view
- Optimized for air to air and air to ground target recognition through high 2.9 arcmin/OLP resolution and 25:1 system contrast
- 10ftL brightness
- Optimized for night vision goggle (NVG) stimulation
- Configurable in budget, resolution, brightness and footprint

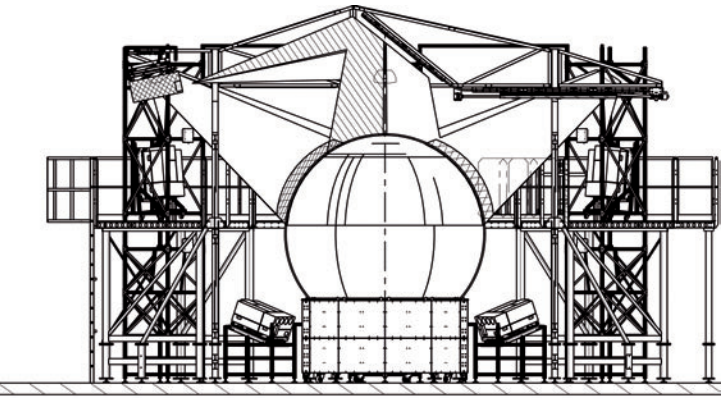


## A real field of view

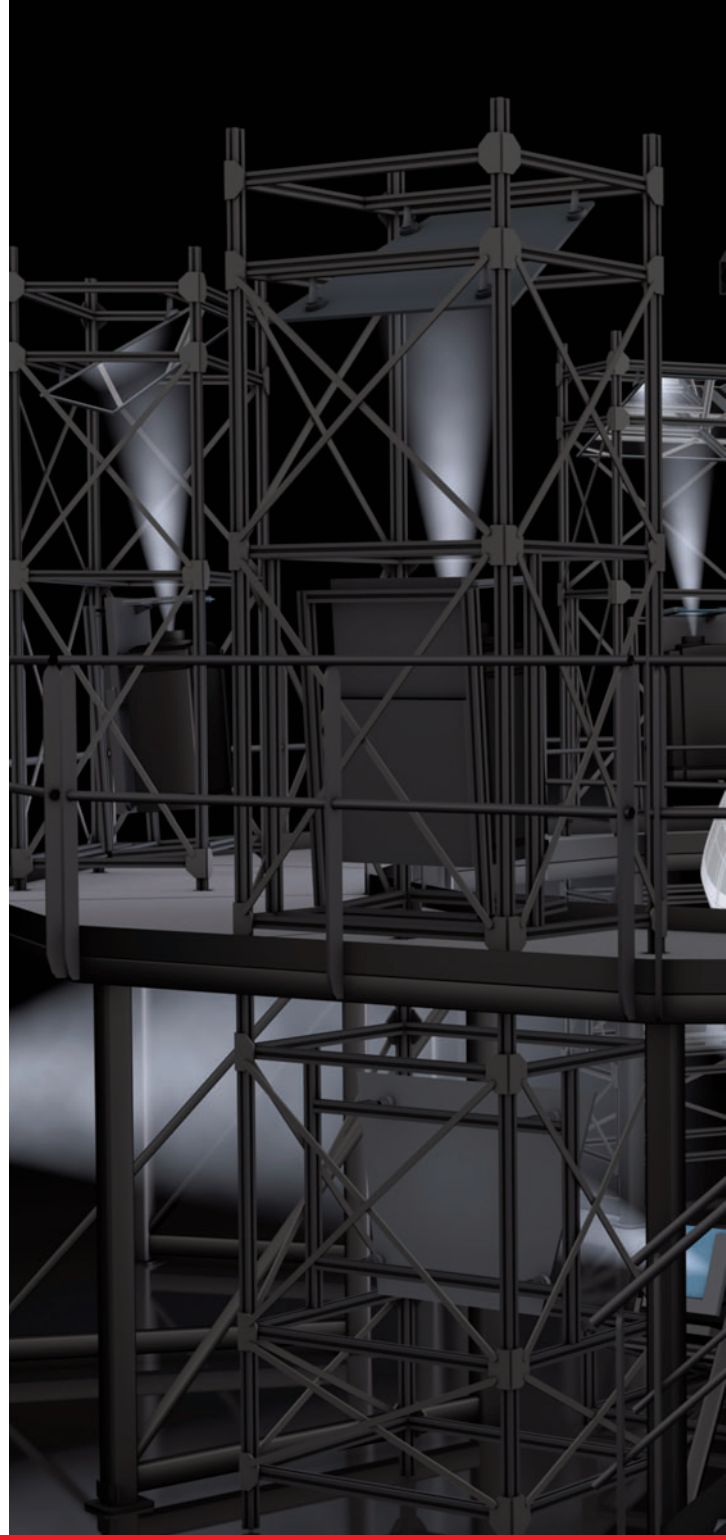
Imagine a simulator that offers a true 360° field of view in all directions. The spherical shape of the screen with the pilot in the center point, creates a pervasive sense of realism and offers constant **eye relief and free head movement**. Because only rear-projection is used, there is no shadow or light disturbance.The assembled, all-spherical screen shows no segments or seams.

## Accurate night training

The dome is compatible with actual **night vision goggle** equipment. Through several visual optimizations, the system displays halo and bloom effects with extreme realism. One of these optimizations is the projectors' increased infrared (IIR) spectrum. In this way, pilots can gain experience that is crucial for life-critical night missions.

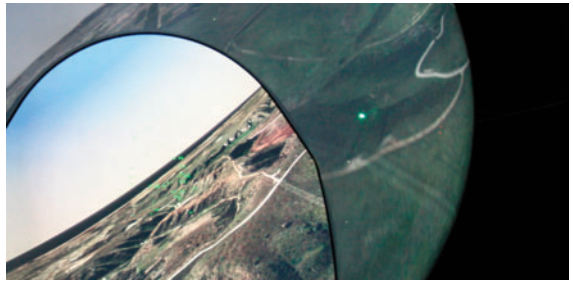






## Real DORI

DORI (Detection, Orientation, Recognition and Identification) requirements are vital to the effectiveness of any simulation system. With the RP-360 dome, pilots can keep track of **fast-moving targets all the time** thanks to the large field of view and visual optimizations such as high system contrast and the smearing reduction technology in the LCoS-based SIM 10 and SIM 7 projectors. The dome handles high-speed imagery effortlessly and offers detailed **2.9 arcmin/OLP** precision. This is extremely close to eye-limiting resolution.





XDS-RACU



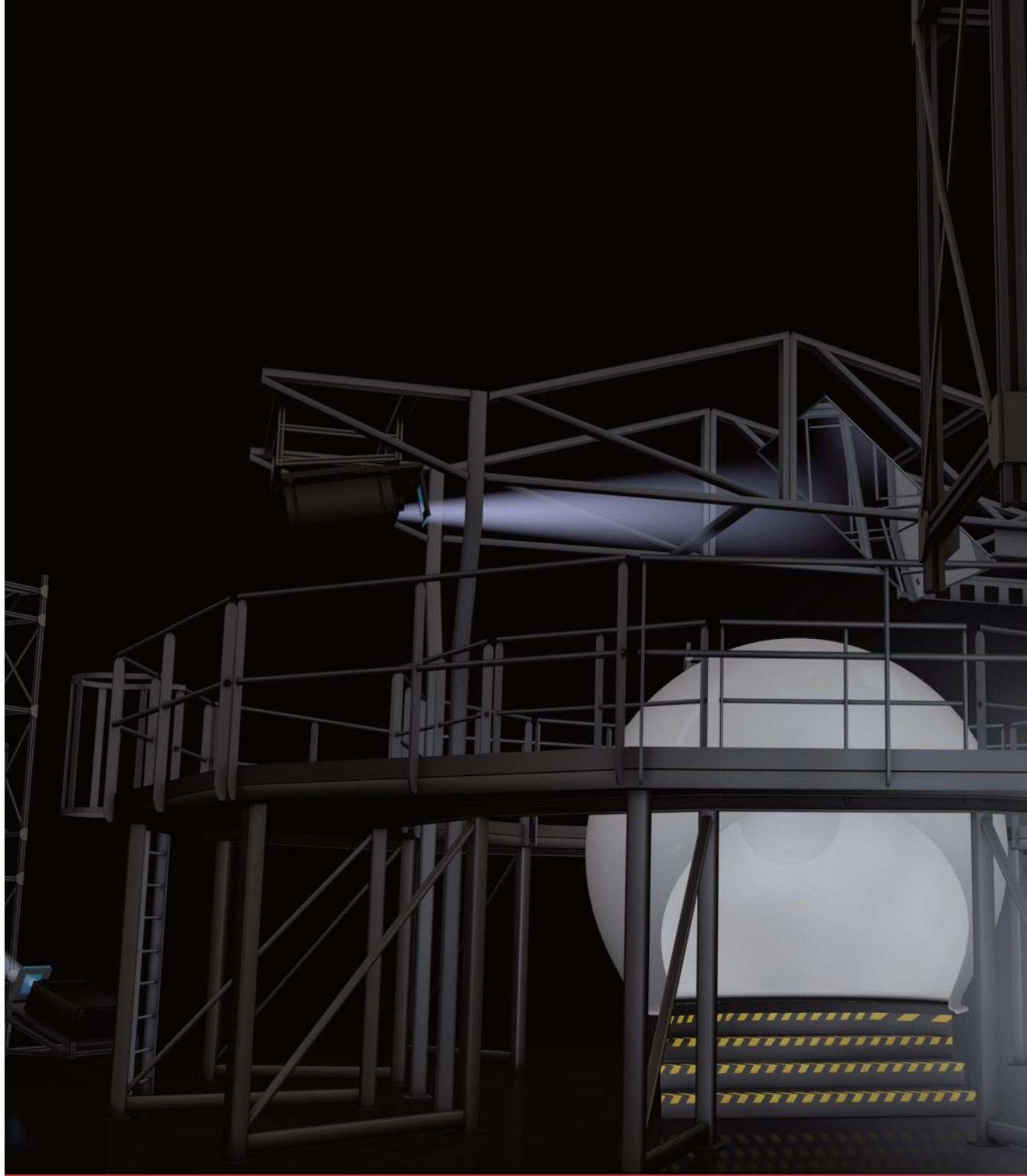
Acuras

## Real uptime

Barco's RP-360 dome was **designed with service and a maximum uptime in mind**. In case a projector needs to be swapped, training can continue in less than one hour. Barco's laser diode array trackers (LDAT) indicate the right spot for the projection to be mapped. Barco has also developed an **entire set of alignment tools** (including the Acuras system and the XDS-RACU controller) that make system setups easier, quicker and repeatable with predictable results. In addition, Barco's global service teams ensure fast intervention and efficient, professional assistance.



Projectors can be rolled in and out easily for quick part replacements.





## Drastically reduced training costs

To reduce the real flying training cost without jeopardizing the training skills, simulators that allow true-to-life flying conditions are required. Thanks to the improved performance of its visual system, Barco's RP-360 is able to offer these realistic training possibilities. What's more, these superior results are established using fewer projectors than previously thought possible.

### The right technology

The standard projector that drives Barco's RP-360 is a **native 10 megapixel projector** with liquid crystal on silicon (LCoS) technology, the SIM 10. For more compact setups, we also offer the SIM 7 projector. Both feature the following **dedicated technologies** for multi-channel setups:

- **Smearing reduction:** handles fast-moving imagery effortlessly
- **Night vision goggle support**
- **Linked constant light output:** brightness equalization across channels, important for TCO and maintenance
- **DynaColor:** automatic color calibration across channels
- **Edge blending:** creates one seamless composite image
- **Warping:** precise geometry correction for curved surfaces



Native 10 megapixel projector for simulation



SIM 7

### The setup to suit your needs

Barco's RP-360 system comes in several standard configurations:
- 19ft high, with 13 or 14 SIM 10 or SIM 7 projectors
- 14ft high, with 13 or 14 SIM 10 or SIM 7 projectors

# Proven technology

Barco's RP-360 is designed from the ground up with Barco technology. In-house developed, powerful design tools allow us to accurately predict the system's ideal setup and performance, and feedback from the field allows us to improve the design tools and processes each time. The dome's entire mechanical structure, projection and screen technology are all Barco-designed, and the screens have a special coating that increases its overall image quality.





Barco's solutions are not limited to large dome setups alone. Its product range and installed base of systems includes compact SEER mini-domes for flight training, collimated displays for dual-cockpit simulation as well as systems for naval, air traffic control, vehicle and arms training.

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M00441-R02-1111-PB November 2011

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# SIM 7 series

## High-resolution simulation projectors with no speed limits

Now also available
with enhanced brightness




- FAA certified (level D)
- Optimized for multi-channel visualization
- Smear-free operation
- Advanced, zero frame delay warping
- Extended contrast for accurate night/dusk training
- Motion-base simulator compatible
- Stimulated NVG capability (not available on HB models)
- Enabled for automated alignment

Barco's SIM 7 series projectors push the envelope of visualization technology to provide extremely realistic simulation. Equipped with the industry's latest and fastest switching LCoS (Liquid Crystal on Silicon) technology, the SIM 7 series delivers nothing less than razor sharp, no-smear images for high-speed motion and other simulation applications.

The Barco SIM 7 series consists of the SIM 7Q (standard) and the SIM 7Q HB (with high brightness levels). This projector range is optimized for multi-channel visualization to provide exceptional contrast, QXGA (2048x1536) resolution, unmatched dynamic range, seamless image blending, and outstanding performance. Specially developed to meet the real-world demands of commercial and military flight training and mission rehearsal scenarios, the Barco SIM 7 series can be easily integrated into simulation systems with spherical, curved, or flat projection surfaces. If your training applications require visual simulation that is highly realistic, the Barco SIM 7 series give you the best image quality known today, with no speed limits.

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# Barco's SIM 7 doesn't sacrifice speed for realism - it has both

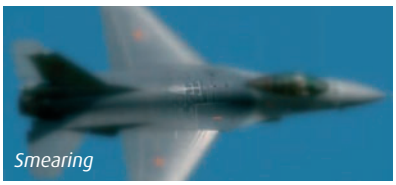
## Optimized for high-resolution, multi-channel visualization

The SIM 7 comes equipped with various Barco engineered technologies that make it ideal for multi-channel simulation projection:

- **Optical and electronic edge blending** eliminate overlap zones where projections converge, to create one seamless image.
- **Linked constant light output** (CLO) guarantees the same brightness levels for the entire composite image.
- **DynaColor** and **gray level definition** ensure accurate color matching and gradient color definitions across the multi-channel system.
- **Warping** enables correct, undistorted projection without frame delay and loss of pixels on a curved or spherical screen.

## True smear-free operation

Its truly unique smear reduction technology allows Barco to provide high-quality smear reduced images, without any impact on the contrast ratio or the dynamic range.


*Smearing*

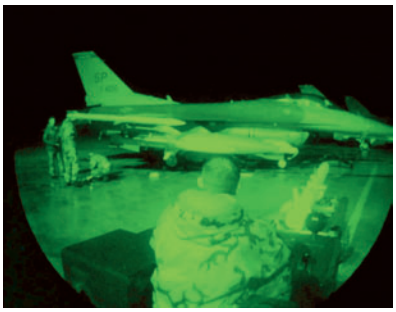

*No smearing*

## High contrast, deep black levels

Barco's contrast-enhancing features in the SIM 7 make it possible to simulate **true black levels** and attain levels of color gradience as close to a real-life experience as possible. The SIM 7's dynamic contrast ratio can be enhanced to up to 6,000,000:1, which is offered by no other competitor in the industry.

## Stimulated NVG capability

As today's combat scenarios take place during night, having pilots fully trained to fly under these conditions is necessary for survival. Barco's night vision goggles (NVG) optimization lets you use the SIM 7Q projectors for true, **realistic NVG stimulation** with ultra realistic blooming and halo night vision effects. This technology is compatible with any current generation of NVGs.



## Motion simulator compatibility

The Barco SIM 7 can be equipped with a motion-base compatibility option, and it is ruggedized to withstand the high G-forces of motion vibration.

## Enabled for automated alignment

Quickly and easily setup your multi-channel SIM 7 display system with Barco's advanced automated alignment system and remote display controller.

## Brightest LCoS simulation projector on the market

The SIM 7Q HB introduces a new brightness standard in simulators. Its stunning brightness level (typically 2,800 lumens) was designed specifically for use in environments where light output is a critical issue, and allows the projection of exceptionally realistic day-scenes. Unlike competing models, these brightness levels are in no way compromised by the projector's contrast enhancement functionality.

## SIM 7P series

All SIM 7 series projectors are also available in **portrait mode**, enabling a much higher vertical field of view compared to traditonal solutions.

| | SIM 7Q HB | SIM 7Q | SIM 7QP HB | SIM 7QP |
|---|---|---|---|---|
| Resolution | QXGA (2048x1536) | | 1536x2048 | |
| Brightness (lumens) | Typ. 2800 | Typ. 2000 | Typ. 2500 | Typ. 1800 |
| Aspect ratio | 4:3 | | 3:4 | |
| Contrast ratio | high dynamic contrast ratio up to 6,000,000:1 | | | |
| Warping | gen 3 WARP | | | |
| Latency | down to 3.5ms | | | |

M00154-R02-1111-DS November 2011

DESIGNED UNDER ISO 9001

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# SIM 7 series

## High-resolution simulation projector with no speed limits




- Optimized for multi-channel visualization
- Smear-free operation
- Advanced, zero frame delay warping
- Extended contrast for accurate night/dusk training
- Motion-base simulator compatible
- **Enhanced**, stimulated NVG capability
- Enabled for automated alignment

Barco's SIM 7 series projectors push the envelope of visualization technology to provide extremely realistic simulation. The Barco SIM 7 series is equipped with the industry's latest and fastest switching LCoS (Liquid Crystal on Silicon) technology, which delivers nothing less than razor sharp, no-smear images for high-speed motion and other simulation applications.

The Barco SIM 7 series is optimized for multi-channel visualization to provide exceptional contrast, unmatched dynamic range, seamless image blending, and outstanding performance. Specially developed to meet the real-world demands of commercial and military flight training and mission rehearsal scenarios, the Barco SIM 7 series can be easily integrated into simulation systems with spherical, curved, or flat projection surfaces. If your training applications require visual simulation that is highly realistic, the Barco SIM 7 series give you the best image quality known today, with no speed limits.

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# Barco's SIM 7 doesn't sacrifice speed for realism - it has both

## Optimized for high-resolution, multi-channel visualization

The SIM 7 comes equipped with various Barco engineered technologies that make it ideal for multi-channel simulation projection:

- **Optical and electronic edge blending** eliminate overlap zones where projections converge, to create one seamless image.
- **Linked constant light output** (CLO) guarantees the same brightness levels for the entire composite image
- **DynaColor** and **gray level definition** ensure accurate color matching and gradient color definitions across the multi-channel system.
- **Warping** enables correct, undistorted projection without frame delay and loss of pixels on a curved or spherical screen.

## True smear-free operation

Thanks to Barco's display optmizations and the system's fast refresh rates, the SIM 7 produces high-quality images on par with CRT technology - but at a much lower price. This renders the SIM 7 the **next-generation projector of choice** for fast-jet training and other visually intensive simulation applications.


*Smearing*


*No smearing*

## High contrast, deep black levels

Barco's contrast-enhancing features in the SIM 7 make it possible to simulate **true black levels** and attain levels of color gradience as close to a real-life experience as possible. The SIM 7's dynamic contrast ratio can be enhanced to up to 6,000,000:1, which is offered by no other competitor in the industry.

## Stimulated NVG capability

As today's combat scenarios take place during night, having pilots fully trained to fly under these conditions is necessary for survival. Barco's night vision goggles (NVG) optimization lets you use the SIM 7 series projectors for true, **realistic NVG stimulation** with ultra realistic blooming and halo night vision effects. This technology is compatible with any current generation of NVGs.





## Motion simulator compatibility

The Barco SIM 7 can be equipped with a motion-base compatibility option, and it is ruggedized to withstand the high G-forces of motion vibration.

## Enabled for automated alignment

Quickly and easily setup your multi-channel SIM 7 display system with Barco's advanced automated alignment system and remote display controller.

## Increased infra-red spectrum

To stay as close to real-life situation as possible **during night training**, Barco's SIM 7 series **can be equipped** with an increased infra-red (IIR) option. This option assures a perfect balance between visible and infrared light, realistically matching that of real-world night circumstances. Consequently, night-sky illuminated objects with a certain visible luminance will have the correct associated IR luminance for NVG stimulation enhancing the sense of realism for a pilot training with today's state of the art NVGs.

| | SIM 7Q | SIM 7D | SIM 7QP | SIM 7DP |
|---|---|---|---|---|
| Resolution | QXGA (2048x1536) | | 1536x2048 | |
| Aspect ratio | 4:3 | | 3:4 | |
| Contrast ratio | high dynamic contrast ratio up to 6,000,000:1 | | | |
| Latency | down to 2ms | | | |
| Warping | gen 3 WARP | TwinWarp | gen 3 WARP | TwinWarp |

R990064 November 2009

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# SIM 10

## 10 megapixel training and simulation projector



Barco's SIM 10 brings together the most forward-thinking technologies available in projection for training and simulation, to help achieve the most realistic image quality possible. The SIM 10 features a native 10 megapixel resolution, a dynamic contrast range of up to 10 million to one and a brightness of up to 6000 lumens.

### Down to the smallest detail

A native resolution of 4096x2400 pixels is a lot of pixels. Nearly 10 million, to be exact. And more pixels means more detail, which results in greater realism. As such SIM 10 is the best choice to build eye-limiting resolution systems. With the SIM 10 projector, pilots in training never miss an essential detail again.

### High-speed, high-quality imagery

In a fast-paced training scenario, it's essential to quickly identify ally or enemy. Barco's smearing reduction technology ensures that the SIM 10 can handle this intense imagery flawlessly, so that targets are immediately recognizable, even at great distances and moving at fast speeds. The SIM 10 smearing reduction allows it to simulate aircraft rolls previously impossible.

### Reduce your total cost of ownership

Barco's SIM 10 allows you to build high-performance simulators with significantly fewer projectors. It comes with 3-LCoS (liquid crystal on silicon) chips of Generation 2011 that have improved display performance and a significantly increased lifetime.

### Passing with flying colors

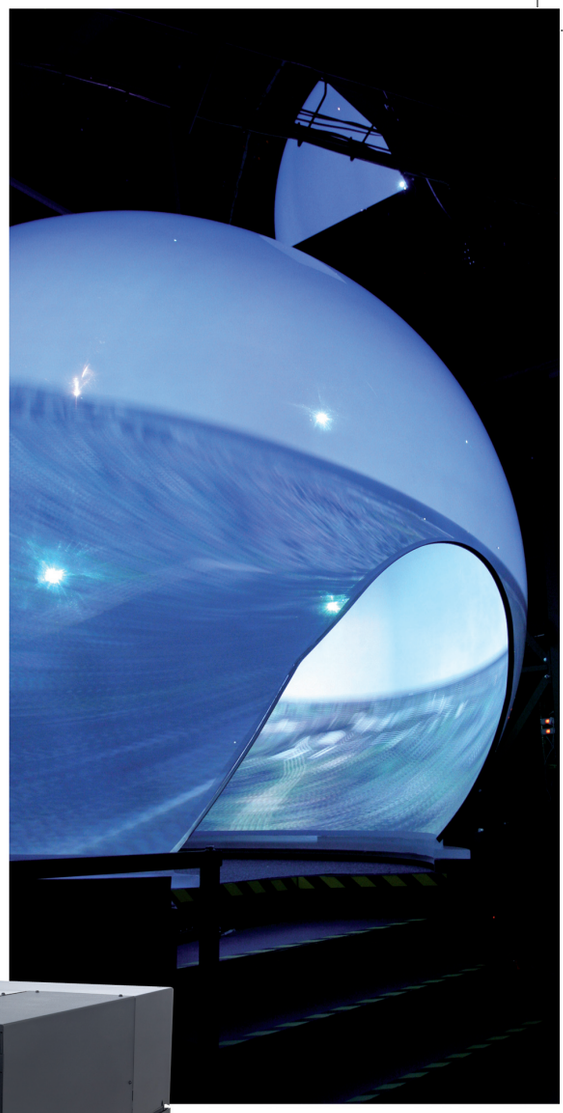
Barco's SIM 10 was designed specifically for training and simulation systems. When you use several projectors to create one image, it automatically equalizes color and brightness levels across the image – even when projectors or lamps are replaced. In this way, you have the same smooth image, free of disturbances, all the time.

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## Not alone in the dark

With a dynamic contrast ratio that can reach up to 10 million to 1 as well as an increased infra-red spectrum, the SIM 10 projector is ideal for simulated night and dusk training. It is completely compatible with all types night vision goggles, and produces realistic halo and blooming effects. This makes Barco's SIM 10 the best choice for all sorts of training needs for pilots – both day and night.

## The right curves

Many simulation environments use curved screens to more accurately render the feeling of being in a cockpit. The SIM 10 carries warping technology on board, which results in a geometrically correct image across any type of curved surface, without the need for separate third-party devices.

## Compatible with any type of simulator

Barco's SIM 10 can be made motion-base compatible, and can be deployed in flat faceted displays, collimated displays as well as front- and rear-projected curved screen displays. Due to its brightness, it is also the perfect choice for upgrades to large domes, or an increase of FtL in compact systems, which eliminates the need for a reading light.



| | SIM 10 |
|---|---|
| Resolution | 10 million pixels (4096x2400) |
| Brightness | up to 6,000 lumens |
| Contrast ratio | dynamic contrast up to 10,000,000:1 |
| Smearing reduction | 50% and 33% options |
| Geometry correction | full 10 million pixels generation 3 warp |

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The standard product warranty is 1 year.

# Galaxy NW series

## WUXGA, network-centric, three-chip DLP, 3D stereo projectors



Barco's Galaxy NW series consists of the NW-7 and NW-12 active 3D stereo projectors with full WUXGA (1920x1200) resolution. The outstanding image quality, thanks to the three-chip DLP technology and a bright 12,000 lumens (Galaxy NW-12) or 7,000 lumens (Galaxy NW-7) light output, is matched only by their ease of use and flexibility: in a familiar Windows desktop, you can display any mix of 2D and 3D stereo sources. The Galaxy NW series is the definitive choice for any collaborative single- or multi-projector display setup. The projectors render your display system more stable, more durable and above all, offer superior image quality.

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# Pixel-perfect image quality

Thanks to the three-chip DLP technology, Barco's Galaxy NW series can claim deep, saturated color quality and a high degree of image realism. **WUXGA** resolution also gives you the chance to view all aspects of your information sources in great detail. In addition, WUXGA resolution is fully compatible with high-end laptops, or allows HD videoconferencing to run unobstructed by tickers, subtitles or your Windows task bar.

The Galaxy NW series' wide horizontal and vertical lens shift options further render it a perfect choice for both front and rear projection. The projectors' built-in geometry correction and blending feature are vastly superior to those of regular three-chip DLP systems, and help resulting in an **exceptional image quality**.

## Mastery of 3D stereo imaging

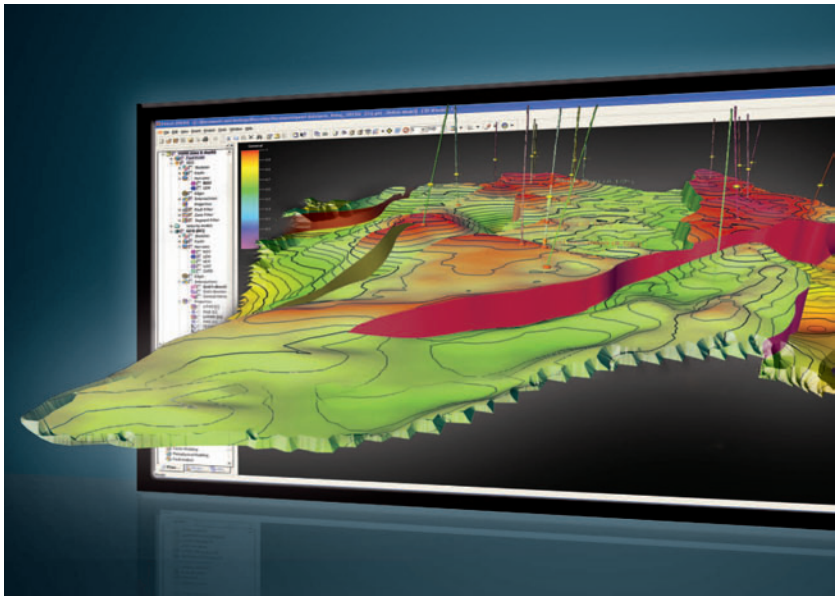
The Galaxy NW series' three-chip DLP platform is our customers' preferred platform for stereoscopic projection. The exact 3D rendering that Barco's Galaxy NW series offers is vital to applications such as **automotive design** review, analysis of large **geophysical** data sets, **scientific research** and many others. The Galaxy NW series supports any current type of stereoscopic technology, depending on the customer's wishes:

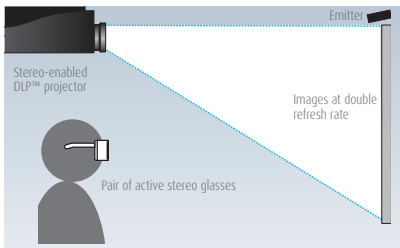
The NW-series can run in active stereo mode, using only one projector to generate both a left and right image simultaneous while retaining exceedingly high levels of color quality. By requiring only one projector per channel, a visualization system can attain a better cost-efficiency.

New in this projector range is the single-projector passive stereo support. The passive to active conversion of the NW-series merges two DVI input signals into a single active output, supporting both Infitec stereo glasses and active shutter glasses.

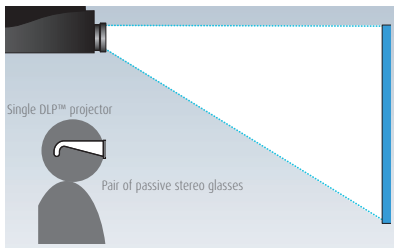
The NW series has integrated optional **active Infitec** filters. This Barco-patented stereo technology has uncompromised image quality, regardless of the type of screen you use. In addition, active Infitec makes use of considerably more affordable passive glasses.

The NW series also supports passive **polarized** stereo, if your visualization center is to be used by large groups. Passive stereo setups, where two projectors generate one stereo image, also retain high levels of brightness, which is ideal for larger rooms.

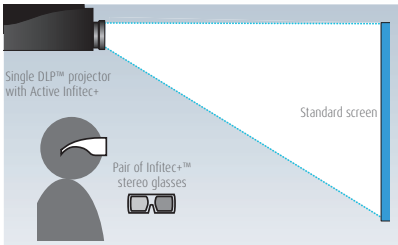




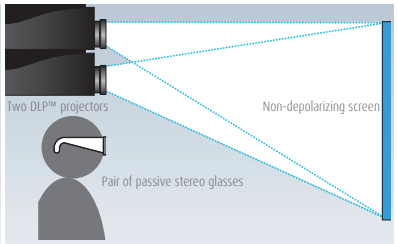

ACTIVE 3D STEREO




PASSIVE 3D (SINGLE PROJECTOR)




ACTIVE INFITEC 3D STEREO




PASSIVE POLARIZED 3D STEREO (TWO PROJECTORS)

# Reducing your total cost of ownership

The price of a projection system is more than just its purchase: servicing, maintenance, peripherals and learning curves should also be taken into account, and often add up to a much higher cost. Barco's Galaxy NW series greatly reduces the total cost of ownership on many levels:



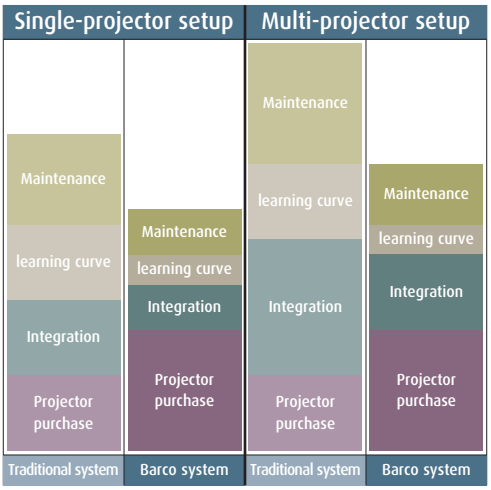
• **You save time,** because you don't need to learn how to work with a new interface and connect various sources over and over again. You simply use Windows and the XDS Control Center software.

• **You save money,** because you don't need to buy remote controls or matrix switchers. Instead, you use keyboard and mouse, and display sources simultaneously on one screen, in fully reconfigurable windows.

• **Reduce maintenance costs.** Your projection system is practically maintenance-free due to its sealed optical engine, and its centralized control and maintenance functionalities eliminate many manual check-up routines.

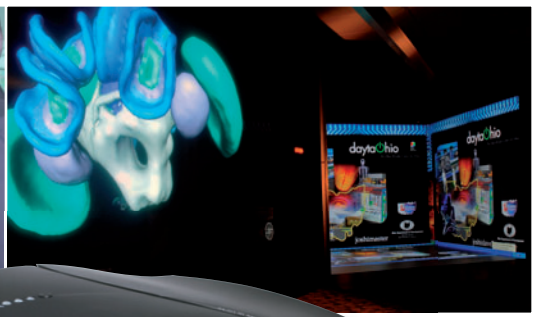
• **Improved reliability.** Thanks to its liquid cooling and its top-of-the-line xenon lamp, the Galaxy NW series boasts a significantly longer system lifetime compared to other three-chip DLP systems.

## Net TCO of a Barco system









# Applications

- Geophysical data analysis
- Avionic and automotive design and review
- Scientific research and data management
- Virtual construction and engineering

# Designed for multi-projector systems

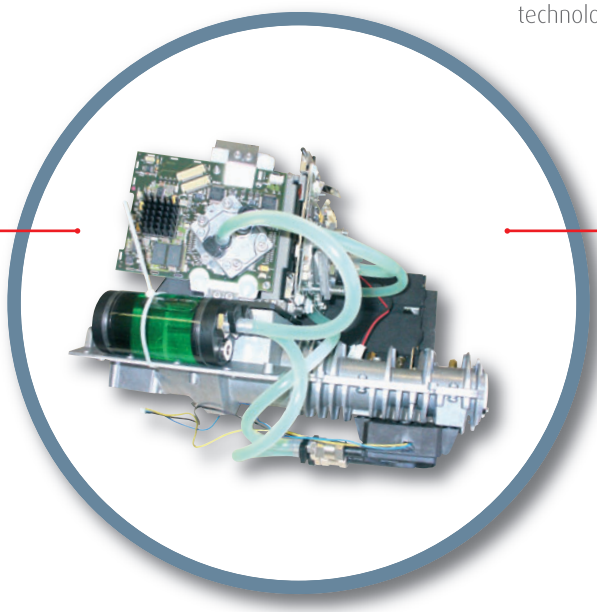





Barco's Galaxy NW series works just as smoothly in a single-projector setup as well as in a multi-projector system, in front as well as rear projection. Your systems will always have the **same look and feel**, thanks to Barco's XDS Control Center software, that lets you control several sources simultaneously in a familiar Windows user interface.

Combined with our own variety of **screen technologies** and **mechanical structures**, there is no type of system, whether flat or curved-screen, that the Galaxy NW series can't handle. To guarantee a pristine image at all times, Barco has equipped the Galaxy NW series with a number of innovative technologies:

- **Edge blending** technology creates one continuous image across the entire screen, without blurry overlap zones. Thanks to Barco's new **alpha and beta plane technology**, electronic blend zones will be close to invisible. In addition, Barco is the only company that has mastered perfect optical blending.
- **DynaColor** and **linked CLO** (constant light output) match color or brightness differences across channels to create one constant color and light output for the entire image. A unique advantage of Barco's **new and improved** DynaColor is that it uses alignment points for **both** primary and secondary colors, which puts it in pole position among comparable technologies.
- **Bi-cubical warping** (geometry correction) ensures that an image is projected correctly, with an extremely high level of accuracy (up to 33 by 33 control points), even across curved, non-flat surfaces, to guarantee a natural view free of distortions.



## Revolutionary design

The aesthetically designed Galaxy NW series uses a chassis designed to attain some of the **lowest noise levels in its class**, averaging well under 49dB. The **liquid-cooled** optical engine's reliability is further increased by being **fully sealed**, which means no dust can enter and cause degradation in contrast and black levels. Your image quality also remains stable over time, thanks to the NW series' rock solid lens holder. This grants the Galaxy NW series a system lifetime that is substantially longer than that of similar three-chip DLP systems, a platform already noted for its great reliability.

## The bottom line

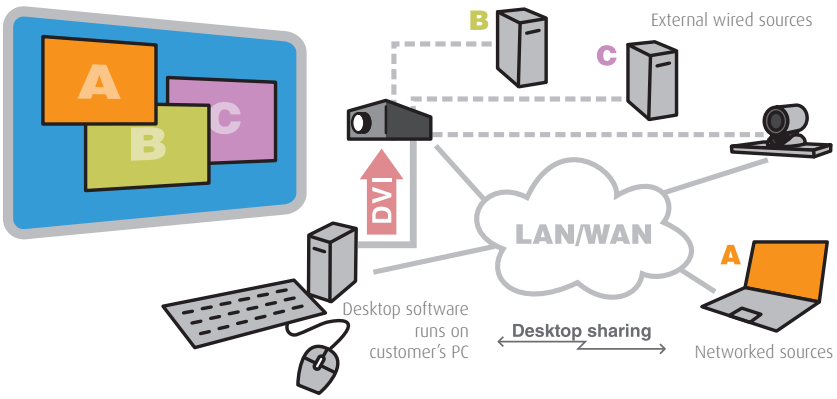
The Galaxy NW series' unique combination of liquid cooling, mechanical stability and improved multi-channel features lead to a very stable, reliable multi-projector display system unrivaled in the industry.

# Efficient collaboration, faster decision-making

Whether you are in the oil and gas sector, the automotive industry, virtual engineering of scientific research, Barco's Galaxy NW series will render your collaborative efforts faster and more efficient, leading to improved decision-making, thanks to the XDS Control Center software suite. Barco's XDS Control Center runs from your dedicated company computer that is connected to the projector, and requires **no additional display management systems in case you use a single- or a two-projector setup.**

## Familiar Windows interface

On a large-screen Windows desktop, you can **simultaneously view and control** any mix of 2D and 3D stereo sources. With just mouse and keyboard, you can select a source, move it, resize its application window or make it overlap with another source. This includes sources directly connected to the Galaxy NW projector as well as networked content and remote desktops.




## Real-time distance collaboration

With the Galaxy NW series, you can't just display any local or networked source, you can **directly take control** of it as well – all with the same mouse and keyboard. You can combine your sources with live video feeds or **HD videoconferencing**, so that you can strongly reduce travel costs, or work in a slow turn-based environment. Your content will not only be visible and shared between locations, it will also be encrypted and **safeguarded** against eavesdropping.

## Centralized control and diagnostics

The Galaxy NW series presents a great asset for your tech support staff, as it allows easy, centralized control and diagnostics over the network, including **remote startup and shutdown**. The Galaxy NW series enables your staff to check the projector's runtime, its lamp lifetime and the status of connected sources. It also sends **automated e-mail alerts** to your AV/IT-personnel in case of lamp problems.



# Galaxy NW series technical specifications

| | | |
|---|---|---|
| Display capabilities | **Light output** | |
| | 12,000 lumens(NW-12) ; 7,000 lumens (NW-7) | |
| | **Contrast** | |
| | up to 2,000:1 | |
| | **Resolution** | |
| | WUXGA (1,920x1,200) | |
| | **Chip technology** | |
| | Sealed and liquid cooled three-chip DLP | |
| Lamps | **Lamp** | |
| | 2 kW Xenon (NW-12); 1.5 KW Xenon (NW-7) | |
| | **Lamp warranty** | |
| | 750 hrs waranted, max. 1,000 hrs (NW-12) | |
| | 1,000 hrs waranted (NW-7) | |
| Dimensions | **Weight** | |
| | 70 kg (154.2 lbs) net - 85 kg (187.4 lbs) shipping weight | |
| | **Height - width - length** | |
| | 345 / 590 / 913 mm | |
| | 13.58" / 23.22" / 35.94" | |
| Lenses | **Available zoom lenses** | |
| | TLD+ (1.5-2.0:1) | R9862010 |
| | TLD+ (2.0-2.8:1) | R9862020 |
| | TLD+ (2.8-4.5:1) | R9862030 |
| | TLD+ (4.5-7.5:1) | R9862040 |
| | **Available fixed focal lenses** | |
| | TLD+ (0.73:1) | R9862000 |
| | TLD+ (1.2:1) | R9840775 |
| | **Lens shift range** | |
| | Horizontal shift up to +/- 65% | |
| | Vertical shift up to +/- 110% | |
| Features | **Special features** | |
| | Standerd active and polarized stereo, optional passive or active Infitec | |
| | Source and PiP operation through Windows OS | |
| | Standard full geometry correction | |
| | Sealed, liquid-cooled engine | |
| | Multi-channel features | |

| | | |
|---|---|---|
| Inputs and outputs | **Standard inputs** | |
| | Twin dual link DVI | |
| | 3 stereo sync inputs (mini-DIN) | |
| | **Optional inputs** (2 free layers) | |
| | QXGA RGBHV input | |
| | DVI/D15 input (HDCP) | |
| | Extra twin dual link DVI | |
| | **Communication ports** | |
| | RS232 (on D9) | |
| | 10/100 Mb/s Ethernet (on RJ45) | |
| Compatibility | **Data** | |
| | Analog sources with a pixel clock of up to 270 MHz | |
| | DVI sources with a pixel clock of up to 300 MHz | |
| Safety | **Safety standards** | |
| | ETL60950 and EN60950 | |
| | CE compliant | |
| | CCC compliant | |
| Power | **AC power** | |
| | 200 - 240 VAC/50-60 Hz | |
| | **Max. power consumption / dissipation** | |
| | 2,800 Watt / 9,560 BTU | |
| Order info | Galaxy NW-7 | R9040406 |
| | Galaxy NW-12 | R9040411 |
| | New 1.5 kW lamp | R9843085 |
| | New 2kW lamp | R9843087 |
| | Refurbished lamp NW-7 | R9843095 |
| | Refurbished lamp NW-12 | R9843097 |
| | QXGA RGBHV input | R9843020 |
| | DVI/D15 input (HDCP) | R9843045 |
| | Twin dual DVI | R9843041 |

M00147-R02-0212-PB

DLP™ technology by Texas Instruments offers crystal clear images with superior quality. DLP is a trademark of Texas Instruments.

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

Barco nv
Avionics & Simulation Division
Noordlaan 5, 8520 Kuurne, Belgium
Tel. +32 56 36 86 00 - Fax + 32 56 36 84 86
email: contact.bps@barco.com



Visibly yours

# CD series

## Cross-cockpit collimated display system



Barco's cross-cockpit collimated display system is a fully integrated, optimized simulator for accurate **side-by-side cockpit training**. The CD series combine Barco's expertise in projection, mechanical structures, screens and display alignment to form one comprehensive solution from the same manufacturer. This means you only need **one address** to turn to for design, installation and service. It offers the following key features:

- 220° x 45° field of view
- most accurate geometry correction
- exceeds Level D and ICAO 9625 Ed.3 standards
- motion-base compatibility
- choice between three- or five-projector setup
- automated alignment tools

With an extensive experience of **over 25 years** in the training and simulation market, Barco has the right know-how in the design, manufacture and installation of complex display systems. Barco is the major key **independent visualization provider** in simulation, and its long track record of business relationship with big companies in the industry easily speaks for itself.

BARCO

Visibly yours

# CD series

## Superior system performance

Since Barco manufactures all the components of this display, including the optical system and projectors, Barco can **guarantee the total system performance**. The CD series offer the highest resolution and highest brightness images available, and **exceed the new ICAO 9625 Ed. 3** performance standard. Barco's polyester film mirror has the best optical performance and is the heart of the display.

## Superior image quality

The CD series come with Barco's advanced **liquid crystal on silicon** (LCoS) projection technology that is FAA Level-D certified. The purpose-designed Barco projectors feature technology that strongly **reduces smearing** of fast-moving images so that pilots can detect, recognize and identify objects much faster. With Barco's unique constant contrast dimming, extended contrast ratio and improved infrared features, your image's dynamic contrast can become over **2,000,000:1**. And with black levels on par with CRT standards, this creates the ideal circumstance for **night training**.

## World-wide presence and service

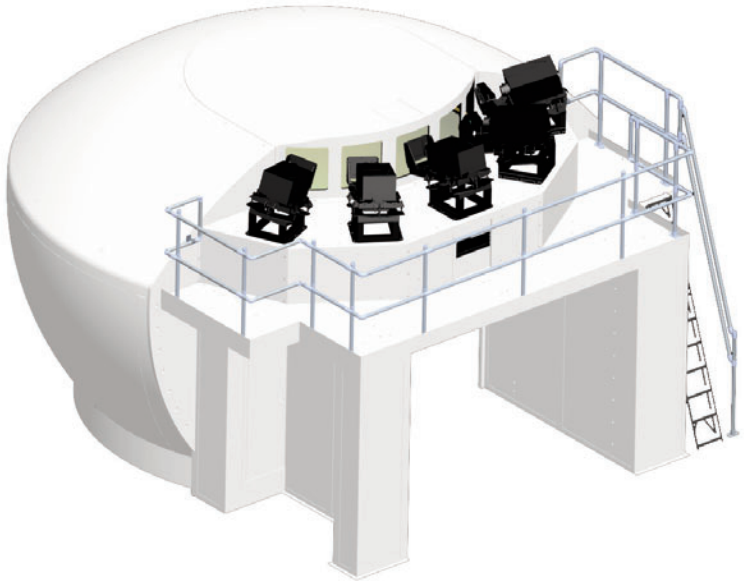
Barco's worldwide presence and long-term involvement with the training and simulation market ensures we can implement the collimated display globally, with our local teams and partners. Our after-sales care is not an afterthought, but a full commitment to **increasing system uptime**. Barco works with you on a tailor-made maintenance program to help you achieve the performance you target. In addition, we employ service desks that can help you in your native language, and offer service agreements tuned to your needs.



- smear-free operation
- flawless edge blending
- color and brightness uniformity
- superb geometry correction



- 220° x 45° field of view
- up 25° and down 20° / up 22.5° and down 22.5° shifts
- light-weight 10 feet radius film mirror



- light-weight 10 feet radius film mirror
- AFT structure option

Barco nv
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Tel. +32 56 36 82 11
Fax +32 56 36 85 26
Or mail to contact.bps@barco.com

M00321-R01-0210-DS

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

# Control room video walls

## Product catalog




BARCO

Visibly yours

Barco:
global **leader**
in professional
visualization
solutions

Monitoring
**50% of the**
**world's**
electricity
transport

Helping **over**
**2.5 billion**
commuters
get home
safely every
day

Supporting security management in **more than 100** metropolitan centers

Helping over **300 million** people keep in touch

**2 billion** people watch Barco every day

# The most complete portfolio for control room visualization



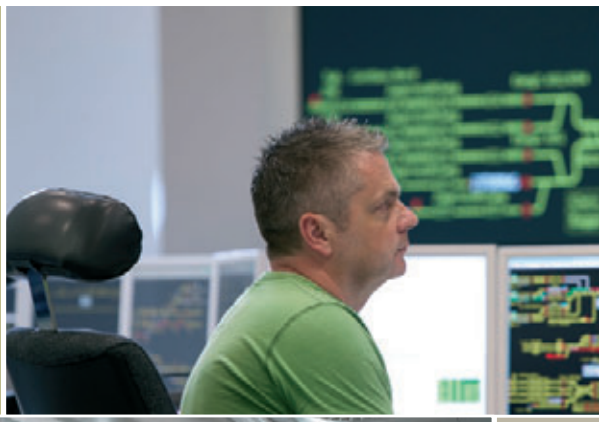


Emergency operation centers, power plants, traffic management centers and other control rooms are all about monitoring business-critical or even life-critical operations, 24 hours a day, 365 days per year. These nerve centers are one of the most demanding environments, with operators relying on dependable visualization, often in a networked setup, for their decision making.

Building on a wide expertise and long history in control room visualization, Barco's extensive portfolio of video wall products features LED and LCD display cubes for video walls, personal video walls, networked and network-ready controllers and wall management software.

Rear-projected video walls

10

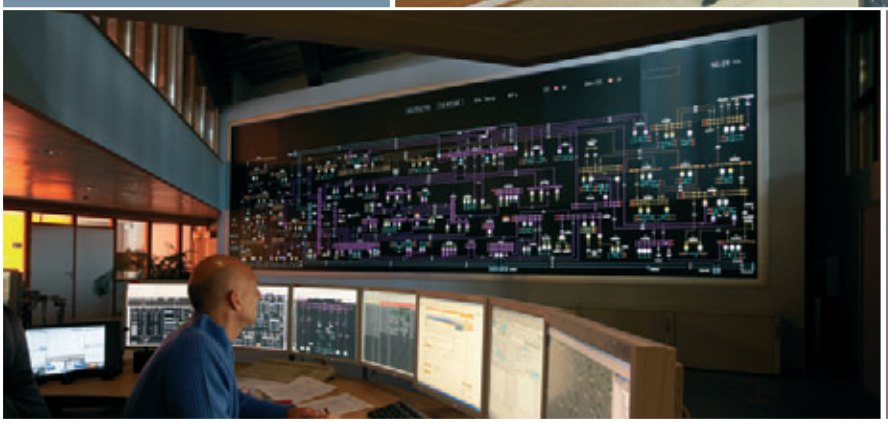




Complementary services

28







LCD video walls

22



Technical specifications

32


**Rear-projected video walls**

| | | | |
|---|---|---|---|
| LED video walls | OL series | OL-510 | 12 |
| | | OL-521 | 12 |
| | | OL-710 | 12 |
| | | OL-721 | 12 |
| | OLF series | OLF-510 | 14 |
| | | OLF-521 | 14 |
| | | OLF-710 | 14 |
| | | OLF-721 | 14 |
| | OLS(F) series | OLS-521 | 16 |
| | | OLS-721 | 16 |
| | | OLSF-521 | 16 |
| | | OLSF-721 | 16 |
| | OVL series | OVL-508 | 18 |
| | | OVL-515 | 18 |
| | | OVL-708 | 18 |
| | | OVL-715 | 18 |
| | | OVL-808 | 18 |
| | | OVL-815 | 18 |
| Lamp video walls | OV-D2 series | OV-508 | 20 |
| | | OV-513 | 20 |
| | | OV-515 | 20 |
| | | OV-708 | 20 |
| | | OV-713 | 20 |
| | | OV-715 | 20 |
| | | OV-808 | 20 |
| | | OV-815 | 20 |
| | | OV-1008 | 20 |
| | | OV-1015 | 20 |

**LCD video walls**

| | | | |
|---|---|---|---|
| Narrow bezel LCD video walls | NSL series | NSL-4601 | 24 |
| | | NSL-5521 | 24 |

**Personal video walls**

| | | | |
|---|---|---|---|
| Wide screen LCD displays | LDX series | LDX-46 | 26 |
| | | LDX-55 | 26 |

**Complementary services**

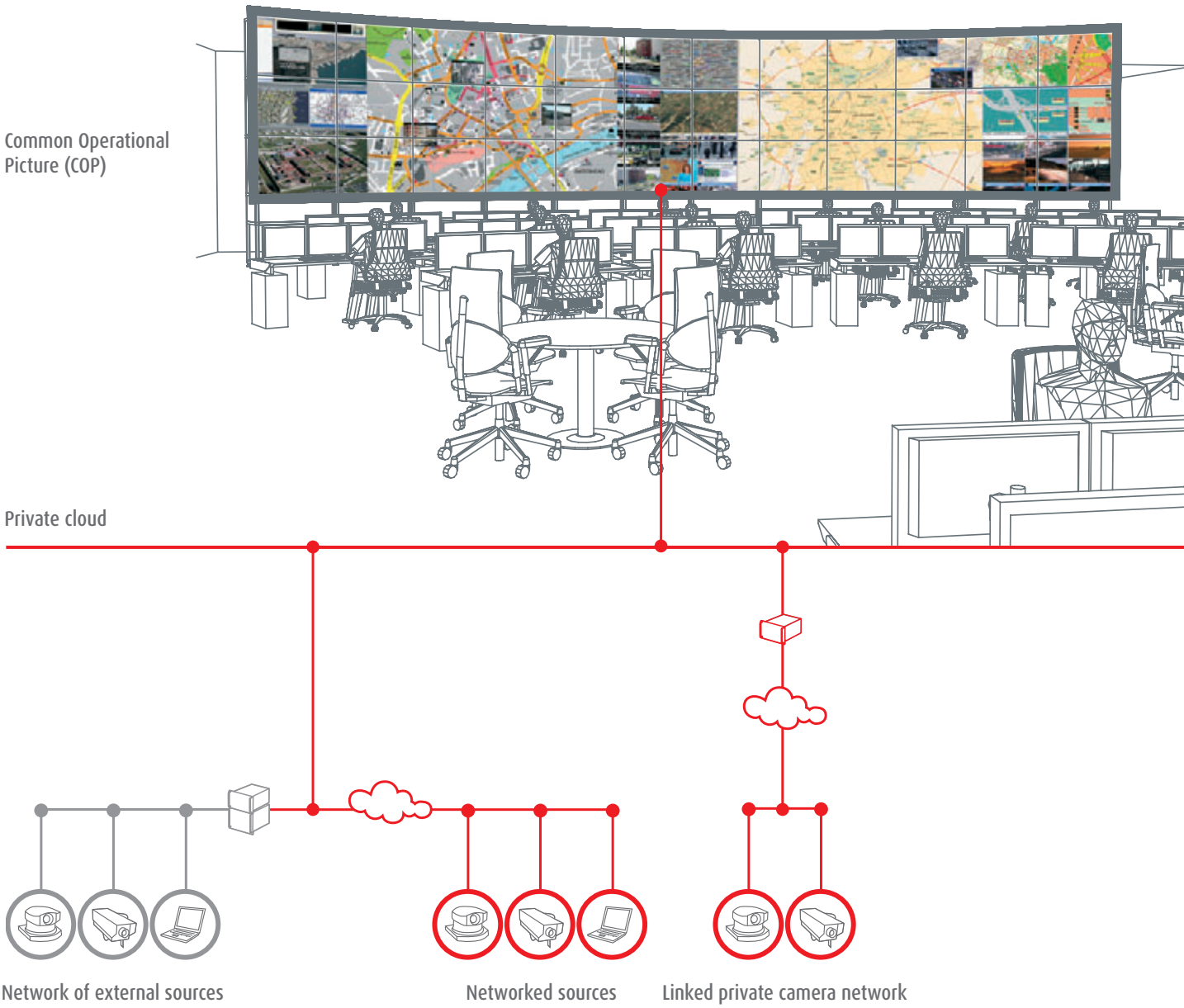
| | |
|---|---|
| Alternative screens | 30 |
| Touch screen | 30 |
| Professional services | 30 |
| Sense[6] | 31 |
| Technology refresh program | 31 |

**Technical specifications**

| | | |
|---|---|---|
| LED video walls | OL(F) series | 34 |
| | OLS series | 36 |
| | OVL series | 38 |
| Lamp video walls | OV-D2 series | 40 |
| LCD video walls | NSL series | 42 |
| Personal video walls | LDX series | 43 |
| Comparative table | | 44 |

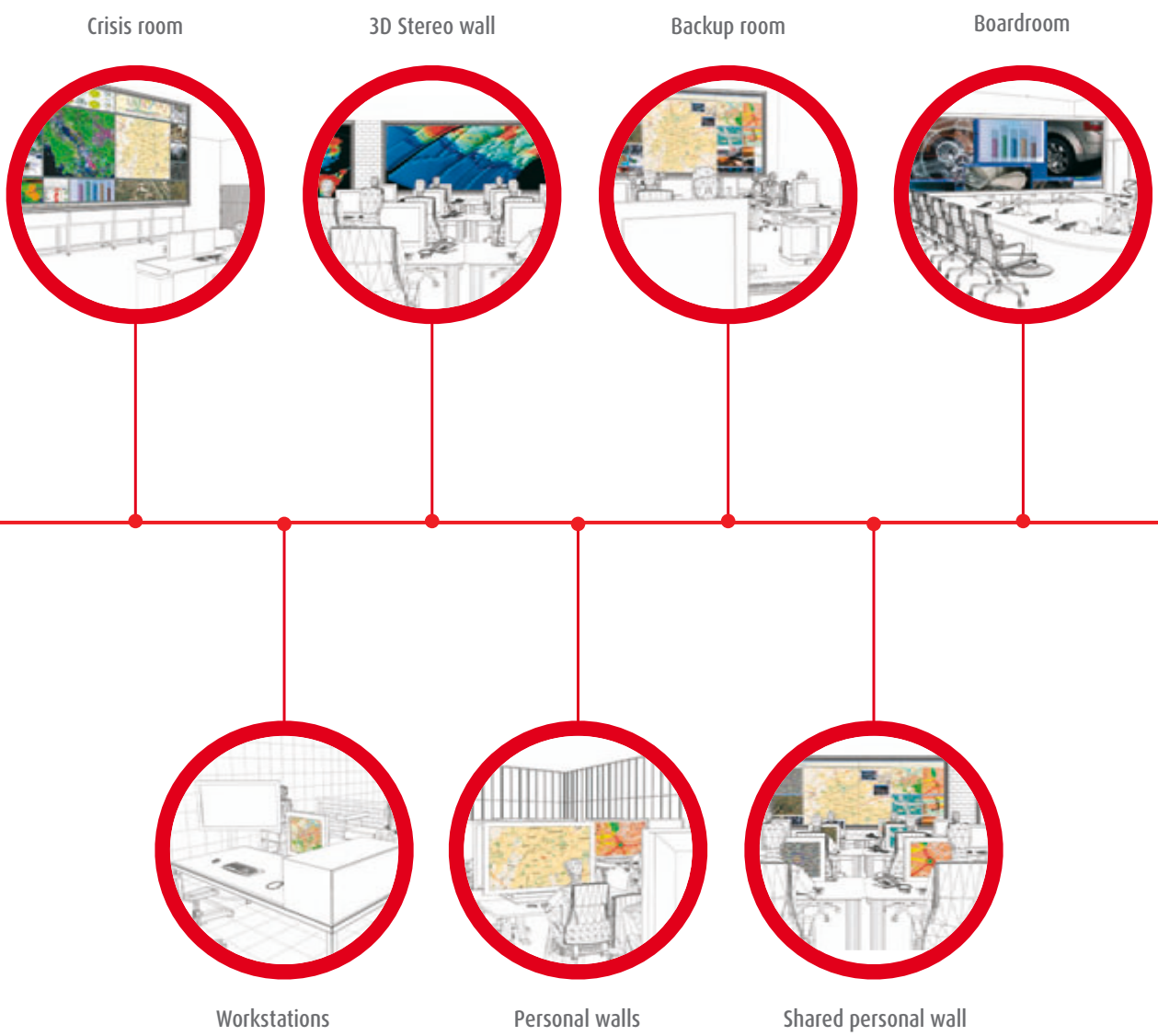
# Scalable, networked & future-proof solutions

Barco's portfolio for the control rooms market consists of visualization equipment, controllers and software. By bringing these components together in total concepts, users discover the true power of our products. The result: easier information sharing, faster communication, and optimal performance of the control rooms.



## Networked visualization

Barco's networked visualization solution is the most versatile control room management system on the market today. It allows the safe and easy distribution of any data or video source over the standard IP network, between multiple rooms and even multiple locations around the world. This innovative system takes data from an unlimited number of inputs, distributes it over an unlimited distance and displays on an unlimited number of visualization equipment, to offer an unmatched level of flexibility and expandability. Our system even supports the secure distribution of information over different private clouds, for example to share content between various public services.





# REAR-PROJECTION VIDEO WALLS

Available in a very large variety of screen sizes and formats, Barco's LED-lit and lamp-lit rear-projection video walls suit all medium to large sized control rooms. The availability of upgrade kits guarantees that your investment is safe across technical updates and that the lifetime of your visualization system is extended.

**LED video walls**

OL series

OLF series

OLS(F) series

OVL series

**Lamp video walls**

OV-D2 series

# 16:9 LED video walls: OL series

## 50″ and 70″ LED rear-projection cubes

Barco's OL LED projection module has been awarded with the red dot quality label for its outstanding design, offering an ergonomically excellent viewing experience, with the sharpest and most saturated colors in WXGA or full HD resolution.

The OL video wall has been designed for an entirely maintenance-free operation over several years, without any need for consumables. The OL comes with Sense$^{6}$, a unique sensor technology that automatically provides brightness and color stability over time and across the entire display. Sense$^{6}$ continuously measures brightness and color and adjusts the color space to provide an image that is most convenient for the human eye.

Thanks to the small depth of the projection module the OL display cube can easily be installed in small rooms. The rugged design also makes these video walls suited for industrial environments.



### Key characteristics

- > 3rd generation LEDs for unmatched brightness & minimal power consumption
- > Sense$^{6}$ technology for brightness and color stability
- > Liquid cooling ensures longer LED lifetime
- > Extremely silent
- > No mercury or other toxic materials used
- > Less disposables, less waste
- > Lightweight for easier transport and installation
- > Recyclable
- > Rugged design, suited for industrial environments

| | | OL-510 | OL-521 | OL-710 | OL-721 |
|---|---|---|---|---|---|
| **Resolution** | | WXGA | Full HD | WXGA | Full HD |
| **Pixels** | | 1368 x 768 | 1920 x 1080 | 1368 x 768 | 1920 x 1080 |
| **Diagonal** | inch | 50 | 50 | 70 | 70 |
| **Aspect ratio** | | 16:9 | 16:9 | 16:9 | 16:9 |
| **Access mode** | | back | back | back | back |
| **Dimensions** (W x H x D) | mm | 1,088 x 612 x 454 | 1,088 x 612 x 454 | 1,550 x 872 x 622 | 1,550 x 872 x 622 |
| **Dimensions** (W x H x D) | inch | 42.8 x 24.1 x 17.9 | 42.8 x 24.1 x 17.9 | 61.x 34.3 x 24.5 | 61. x 34.3 x 24.5 |
| **Weight** | kg | 44 | 44 | 61 | 61 |
| **Weight** | lbs | 97 | 97 | 146 | 146 |

## OL-510




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OL-521




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OL-710




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

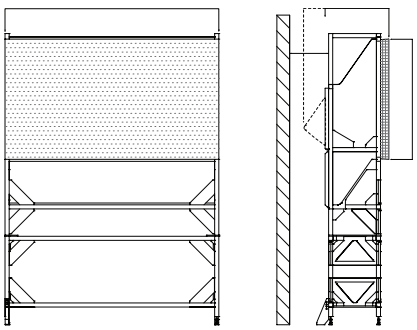
## OL-721




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out



Alternative screen types available



# 16:9 LED video walls with front access: OLF series

## Front accessible 50″ and 70″ LED rear-projection cubes

Barco's OLF LED projection module offers an ergonomically excellent viewing experience, with the sharpest and most saturated colors in WXGA resolution or full HD resolution.

Additionally, this series offers front accessibility, which eliminates the need for a rear maintenance area and drastically limits the space needed in the control room. Added to the already thin design of the OLF series, these video wall cubes can really claim the smallest footprint.

The OLF video wall has been designed for an entirely maintenance-free operation over several years, without any need for consumables. The series comes with Sense[6], a unique sensor technology that automatically provides brightness and color stability over time and across the entire display. Sense[6] continuously measures brightness and color and adjusts the color space to provide an image that is most convenient for the human eye.



### Key characteristics

- > 3rd generation LEDs for unmatched brightness & minimal power consumption
- > Sense[6] technology for brightness and color stability
- > Front accessibility eliminates the need for rear maintenance area
- > Liquid cooling ensures longer LED lifetime
- > Extremely silent
- > No mercury or other toxic materials used
- > Less disposables, less waste
- > Lightweight for easier transport and installation
- > Recyclable
- > Rugged design, suited for industrial environments
- > Brightest cube in class

| | | OLF-510 | OLF-521 | OLF-710 | OLF-721 |
|---|---|---|---|---|---|
| **Resolution** | | WXGA | Full HD | WXGA | Full HD |
| **Pixels** | | 1368 x 768 | 1920 x 1080 | 1368 x 768 | 1920 x 1080 |
| **Diagonal** | inch | 50 | 50 | 70 | 70 |
| **Aspect ratio** | | 16:9 | 16:9 | 16:9 | 16:9 |
| **Access mode** | | front and back | front and back | front and back | front and back |
| **Dimensions** (W x H x D) | mm | 1,088 x 612 x 454 | 1,088 x 612 x 454 | 1,550 x 872 x 622 | 1,550 x 872 x 622 |
| **Dimensions** (W x H x D) | inch | 42.8 x 24.1 x 17.9 | 42.8 x 24.1 x 17.9 | 61.1 x 34.3 x 24.5 | 61.1 x 34.3 x 24.5 |
| **Weight** | kg | 53 | 53 | 74 | 74 |
| **Weight** | lbs | 117 | 117 | 163 | 163 |

## OLF-510




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OLF-521




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OLF-710




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

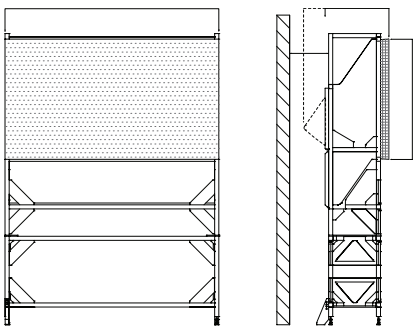
## OLF-721




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out



Alternative screen types available



# 16:9 LED video walls with 3D-stereo: OLS series

## Stereoscopic 50″ and 70″ LED rear-projection series

Barco's extensive expertise in 3D visualization solutions has led to the design of the OLS LED video walls. This series brings vivid stereoscopy to control rooms, contributing to the increasing deployment of 3D content.

OLS projection modules also offer an ergonomically excellent viewing experience, with the sharpest and most saturated colors in full HD resolution. Furthermore, the series has been designed for an entirely maintenance-free operation over several years, without the need for consumables.

The OLS comes with Sense[6], a unique sensor technology that automatically provides brightness and color stability over time and across the entire display. Sense[6] continuously measures brightness and color and adjusts the color space to provide an image (2D or 3D) that is most convenient for the human eye.



### Key characteristics

- > 3rd generation LEDs for unmatched brightness & minimal power consumption
- > 3D stereo using active shutter glasses
- > Low total cost of ownership
- > Liquid cooling ensures longer LED lifetime
- > Vivid LED colors
- > Sense[6] technology for brightness and color stability
- > Can be arranged in any shape and size
- > Cost-effective
- > Cubes can be combined to create high wall resolutions
- > Optional front accessibility

| | | OLS-521 | OLS-721 | OLSF-521 | OLSF-721 |
|---|---|---|---|---|---|
| **Resolution** | | Full HD | Full HD | Full HD | Full HD |
| **Pixels** | | 1920 x 1080 | 1920 x 1080 | 1920 x 1080 | 1920 x 1080 |
| **Diagonal** | inch | 50 | 70 | 50 | 70 |
| **Aspect ratio** | | 16:9 | 16:9 | 16:9 | 16:9 |
| **Access mode** | | back | back | front and back | front and back |
| **Dimensions** (W x H x D) | mm | 1,088 x 612 x 454 | 1,550 x 872 x 622 | 1,088 x 612 x 454 | 1,550 x 872 x 622 |
| **Dimensions** (W x H x D) | inch | 42.8 x 24.1 x 17.9 | 61 x 34.3 x 24.5 | 42.8 x 24.1 x 17.9 | 61 x 34.3 x 24.5 |
| **Weight** | kg | 44 | 63 | 53 | 73 |
| **Weight** | lbs | 97 | 139 | 117 | 161 |

## OLS-521




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OLS-721




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OLSF-521




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

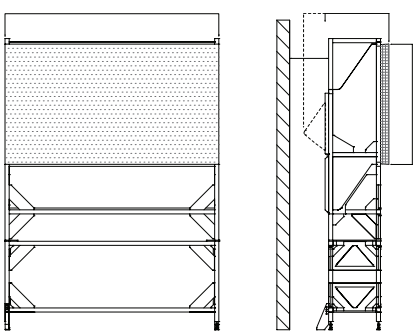
## OLSF-721




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out



Alternative screen types available



# 4:3 LED video walls: OVL series

## 50″, 70″ and 80″ LED rear-projection cubes

Barco's OVL LED projection system is equipped with a liquid cooling system, lifting the LED illumination to a new level of brightness. This projection module offers an ergonomically excellent viewing experience, with the brightest and most saturated colors in XGA or SXGA+ resolution.

The OVL video walls have been designed for an entirely maintenance-free operation over several years, without any need for consumables. Furthermore, the OVL series comes with Sense6, a unique auto-calibration technology that provides brightness and color stability over time and across the entire display. This means that no maintenance or manual adjustments are needed.

Thanks to the modular design of the OVL-projection engine, the OVL projector can also be used to upgrade existing Barco rear-projection modules of the Overview D series.



### Key characteristics

- > 3rd generation LEDs for unmatched brightness & minimal power consumption
- > Sense6 technology for brightness and color stability
- > Liquid cooling ensures longer LED lifetime
- > Extremely silent
- > No mercury or other toxic materials used
- > Less disposables, less waste
- > Maintenance-free
- > Rugged design, suited for industrial environments

| | | OVL-508 | OVL-515 | OVL-708 | OVL-715 |
|---|---|---|---|---|---|
| **Resolution** | | XGA | SXGA+ | XGA | SXGA+ |
| **Pixels** | | 1024 x 768 | 1400 x 1050 | 1024 x 768 | 1400 x 1050 |
| **Diagonal** | inch | 50 | 50 | 70 | 70 |
| **Aspect ratio** | | 4:3 | 4:3 | 4:3 | 4:3 |
| **Access mode** | | back | back | back | back |
| **Dimensions** (W x H x D) | mm | 1,000 x 750 x 734 | 1,000 x 750 x 734 | 1,400 x 1,050 x 899 | 1,400 x 1,050 x 899 |
| **Dimensions** (W x H x D) | inch | 39.4 x 29.52 x 28.9 | 39.4 x 29.52 x 28.9 | 55.1 x 41.2 x 35.4 | 55.1 x 41.2 x 35.4 |
| **Weight** | kg | 65 | 65 | 101.5 | 101.5 |
| **Weight** | lbs | 143 | 143 | 224 | 224 |

## OVL-X08




**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out

## OVL-X15

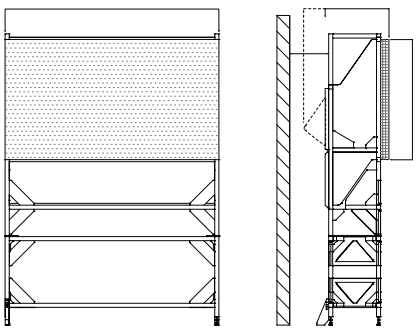



**Input/Output:** 2x Dual link DVI in / 2x Dual link DVI out



Alternative screen types available

| OVL-808 | OVL-815 |
|---|---|
| XGA | SXGA+ |
| 1024 x 768 | 1400 x 1050 |
| 80 | 80 |
| 4:3 | 4:3 |
| back | back |
| 1,600 x 1,200 x 1,023 | 1,600 x 1,200 x 1,023 |
| 63 x 47.2 x 40.3 | 63 x 47.2 x 40.3 |
| 131.3 | 131.3 |
| 289 | 289 |



# Lamp video walls: OV-D2 series

## 50″, 70″, 80″ and 100″ rear-projection cubes

Barco's OV-D2 series are designed and optimized for use in a 24/7 mission critical environment. The Barco designed projection engine provides a set of unique features, resulting in outstanding picture quality, reliability and ease of use.

The 50″ and 70″ versions are available in XGA, SXGA and SXGA+ resolutions. The high brightness and number of pixels per inch make them ideal for usage in broadcast applications, or to display video and detailed content. The 80″ and 100″ models, available in XGA and SXGA+ resolution, provide Barco-quality pictures for a minimal cost per square meter.



### Key characteristics

- > High contrast DLP technology optimizes picture quality
- > Brightness, contrast and viewing angles tailored to human eye
- > Vibrant colors
- > Sense[6] technology for brightness and color stability
- > Ultimate reliability
- > Fast Ethernet communication
- > Projection modules integrated into single display

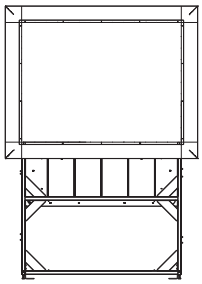
| | | OV-508 | OV-513 | OV-515 | OV-708 |
|---|---|---|---|---|---|
| **Resolution** | | XGA | SXGA | SXGA+ | XGA |
| **Pixels** | | 1024 x 768 | 1280 x 1024 | 1400 x 1050 | 1024 x 768 |
| **Diagonal** | inch | 50 | 50 | 50 | 70 |
| **Aspect ratio** | | 4:3 | 5:4 | 4:3 | 4:3 |
| **Access mode** | | back | back | back | back |
| **Dimensions** (W x H x D) | mm | 1,000 x 750 x 734 | 1,000 x 800 x 715 | 1,000 x 750 x 734 | 1,400 x 1,050 x 899 |
| **Dimensions** (W x H x D) | inch | 39.4 x 29.5 x 28.9 | 39.4 x 31.5 x 28.1 | 39.4 x 29.5 x 28.9 | 55.1 x 41.3 x 35.4 |
| **Weight** | kg | 65 | 68.5 | 65 | 101.5 |
| **Weight** | lbs | 143 | 151 | 143 | 224 |

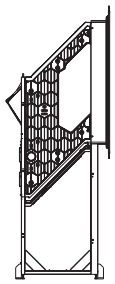
# OV-D2 series

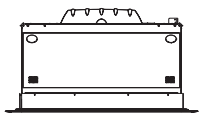



**Input/Output:** 1 x DVI-D in/out, 1 x Dual-link DVI-D in/out









Alternative screen types and lamps available

| OV-713 | OV-715 | OV-808 | OV-815 | OV-1008 | OV-1015 |
|---|---|---|---|---|---|
| SXGA | SXGA+ | XGA | SXGA+ | XGA | SXGA+ |
| 1280 x 1024 | 1400 x 1050 | 1024 x 768 | 1400 x 1050 | 1024 x 768 | 1400 x 1050 |
| 70 | 70 | 80 | 80 | 100 | 100 |
| 5:4 | 4:3 | 4:3 | 4:3 | 4:3 | 4:3 |
| back | back | back | back | back | back |
| 1,400 x 1,120 x 973 | 1,400 x 1,050 x 899 | 1,600 x 1,200 x 1,023 | 1,600 x 1,200 x 1,023 | 2,032 x 1,524 x 1,400 | 2,032 x 1,524 x 1,400 |
| 55.1 x 44.1 x 38.3 | 55.1 x 41.3 x 35.4 | 63 x 47.2 x 40.3 | 63 x 47.2 x 40.3 | 80 x 60.2 x 55.1 | 80 x 60.2 x 55.1 |
| 108.5 | 101.5 | 131.3 | 131.3 | 273.5 | 273.5 |
| 239 | 224 | 289 | 289 | 602 | 602 |


CNN
Réceptions satellite

# LCD VIDEO WALL SOLUTIONS

Specifically designed for small and medium-sized control rooms, Barco's LCD displays produce sharp, high-quality images for demanding applications. Combining the typical benefits of LCD technology – low maintenance, thin design, wide viewing angle, ... - with Barco's knowhow in professional visualization, these display solutions are the best choice for any control room.

**LCD video walls**

NSL series

**Personal video walls**

LDX series

# LCD video walls: NSL series

## 46″ and 55″ narrow-bezel LCD for control rooms

Barco's NSL-5521, a 55″ full HD LCD with LED backlights, combines high brightness and a durable LED backlight technology with an extremely narrow bezel for excellent tiled visual performance.

The Barco NSL-4601 is a professional grade, narrow-bezel 46″ LCD display with WXGA resolution, which has been designed for tiled video wall applications in small to medium-sized control rooms.

As a tiled LCD solution, the NSL series is ideal for personal wall environments and adjunct control rooms in Emergency Operations Centers, traffic management and surveillance centers, C4I-SR environments, utilities & process control centers and broadcast & telecom monitoring applications.




### Key characteristics

- > High resolution
- > Cooling system seperating hot and cold air
- > Anti image retention circuitry
- > Minimal seam for optimal tiled visual performance
- > Multiple sources (video, PC content or streaming video)
- > Scaled or native resolutions
- > Stable colors thanks to display consistency management software
- > Front and rear accessibility

| | | NSL-4601 | NSL-5521 |
|---|---|---|---|
| **Backlight** | | CCFL lamps | Direct LED |
| **Resolution** | | WXGA | Full HD |
| **Pixels** | | 1366 x 768 | 1920 x 1080 |
| **Diagonal** | inch | 46 | 55 |
| **Aspect ratio** | | 16:9 | 16:9 |
| **Access mode** | | front and back | front and back |
| **Dimensions** (W x H x D) | mm | 1,026 x 580 x 98 | 1,215 x 686 x 98 |
| **Dimensions** (W x H x D) | inch | 40.4 x 22.8 x 3.9 | 47.8 x 27 x 3.9 |
| **Weight** | kg | 29.8 | 35 |
| **Weight** | lbs | 65.7 | 77.3 |

## NSL-4601




**Input/Output:** DSUB-15P in/out, DVI-D in/out, BNC in/out, S-video in/out

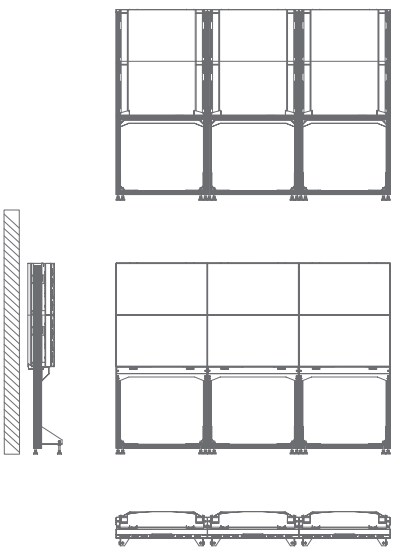
## NSL-5521




**Input/Output:** DSUB-15P in/out, DVI-D in/out, BNC in/out, S-video in/out



Floor- and wall mount solution available with heat management to avoid accumulation of heat at the higher rows



# Personal video walls: LDX series

## 46″ and 55″ wide screen LCD displays

Barco's LDX series display with LED backlights has been designed for use in a wide variety of professional applications. The LDX produces crisp, bright and color-accurate images on a 46″ or 55″ screen.

Featuring LED backlit LCD technology, the LDX boasts a high brightness and wide color gamut and provides an exceptionally thin and space-saving design. Available in native full high definition (1920 x 1080 pixels), the LDX is a high-quality display that can be deployed in a wide variety of markets.

Barco's LDX combines the typical benefits of liquid crystal technology (such as low maintenance costs) with energy-efficient LED backlights, reducing image burn-in and colorations, which makes it perfectly suited for long-term usage.



### Key characteristics

- > Anti Image Retention circuitry
- > Wide viewing angle
- > High brightness for use in all conditions
- > High contrast, even in high ambient light environments
- > High resolution and pixel density
- > Low power consumption

| | | LDX-46 | LDX-55 |
|---|---|---|---|
| **Backlight** | | Edge LED | Edge LED |
| **Resolution** | | Full HD | Full HD |
| **Pixels** | | 1920 x 1080 | 1920 x 1080 |
| **Diagonal** | inch | 46 | 55 |
| **Aspect ratio** | | 16:9 | 16:9 |
| **Dimensions** (WxHxD) | mm | 1,075 x 639 x 85 | 1,267 x 749 x 81 |
| **Dimensions** (WxHxD) | inch | 42.3 x 25.2 x 3.3 | 49.9 x 29.5 x 3.2 |
| **Weight** | kg | 28 | 35 |
| **Weight** | lbs | 61.8 | 77.3 |

## LDX-46



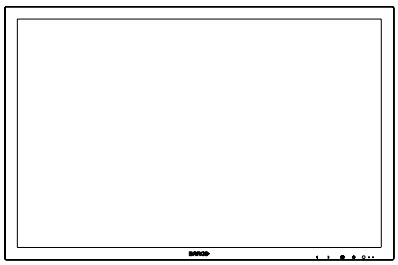

**Standard inputs:** DVI single link, display port, HDMI, VGA, 2xHDSDI+3Gb/s, analog video (CVBS, S-Video, Component)

## LDX-55




**Standard inputs:** DVI single link, display port, HDMI, VGA, 2xHDSDI+3Gb/s, analog video (CVBS, S-Video, Component)





Easy wall or ceiling installation using integrated mounting interfaces according to VESA standards



# COMPLEMENTARY SERVICES

Barco's complementary services help you choose, install and integrate the best possible visualization solution. You can rest assured that your system will always perform optimally and that you can upgrade critical components to follow new technologies like LED to extend your system's lifetime.

**Alternative screens**

**Professional services**

**Touch screen**

**Sense[6]**

**Technology refresh program**

# Technology options

## High contrast, high brightness screens

- Screens available for OL series: HVA (BB), FXS (standard), High Gain
- Screens available for OVL series: FXS (standard) and High Gain
- Screens available for OV-D2 series: HVA (standard), HVM and HVX
- Dedicated screens for high brightness or wide viewing angles
- Stitched and modular screens

When using rear-projection video walls, not only the projection engine is important, but also the screen used. The standard screens delivered with the Barco video wall cubes are aimed at offering high performance in all circumstances. However, for environments needing special requirements in terms of brightness, contrast, viewing angle and luminance, alternative screens can be selected.

## Touch screen

- Control over menus, buttons and objects on the display wall
- Write and save notes in software applications
- High touch accuracy
- Fast responsiveness
- Scalability for large video walls

With the Digital Vision Touch technology (DViT) from SMART Technologies, Barco's display wall solutions become truly interactive environments in which users can access and manipulate data on a large screen area. Barco's OVTS-50 Video Wall Touch System features SMART's high-precision touch screen technology enabling intuitive finger tip interaction on large-area display content.
SMART's DViT technology is an add-on product for the OVL and OV-D2 series, integrated at the bottom of the screen. The OVTS-50 system delivers unmatched accuracy and responsiveness and ensures real-time interaction on Barco's 50-inch video wall cubes.

## Professional services

- An extensive range of services, tailored to specific needs
- Perfect control of costs
- Pro-active maintenance and obsolescence management possibilities
- Single point of contact
- Training options available

Today's business-critical environments increasingly rely on visualization technology for monitoring and decision-making purposes. Due to the critical nature of the application, continuous availability and flexibility of these systems is a must. Barco's professional services, offered in cooperation with our reseller/integrator network, guide customers to choose the right technology, install and integrate their visualization solution and maintain the system following the industry standards.

Furthermore, these services allow to select value-added and custom-tailored options for small, medium and large-scale projects. Aided by this extensive range of professional services, customers get the most out of their investment, from the design phase through the entire project lifecycle.

## Sense$^6$

Sense$^6$ brings wall uniformity to the next level. Not only does Sense$^6$ increase color and brightness uniformity in the corners of each single projection module, Barco's innovative technology also keeps all projection modules equal over time and across the entire video wall.

By integrating a patented brightness and color sensor (for the lamp-based modules) or a spectrometer (LED-based), the video wall's color and brightness is continuously measured and communicated between projection modules. Sense$^6$ automatically matches the brightness of full white, full black and all gray levels in between, as well as the colors of all display modules.

Thanks to Barco's remote management software, operators and system administrators can easily control and calibrate individual display cubes or a complete video wall. As such, displays and projectors in a control room become a centrally managed asset, guaranteeing maximum uptime.

- > Ultimate color stability
- > Counteracts aging effects
- > Uniform color spreading over all cubes
- > No operator attention needed

## Technology refresh program

To bring your control room visualization technology to the most recent high-quality standards, Barco offers an all-in-one technology refresh program for its legacy video wall systems.
Barco's video wall upgrade kit enables to upgrade lamp-based OV-D2, D1 and p-Si video walls to the latest LED-powered technology. In a cost-effective way, you benefit from the many advantages LED technology has to offer, including longer lifetime, reduced maintenance costs and lower energy consumption. Furthermore, the upgraded projection engine ensures an improved on-screen legibility, contrast and uniformity, better ergonomics for operators by optimized brightness levels, increased LED performance thanks to liquid cooling, and LED redundancy for a maximal operational efficiency.

**The video wall upgrade kit includes:**

- New LED-based projection engine
- New illumination unit with input box and cooling unit
- New mounting brackets & sheet metal
- Technology assessment for video wall controller upgrade

- > Secure your Barco investment for the future
- > Minimize system downtime during installation
- > Eliminate the need for cabling and architectural works
- > Benefit from new technology in the most cost-effective way
- > Preserve previous configuration and calibration
- > Ensure a smooth sustainable transition


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14:47:03

# TECHNICAL SPECIFICATIONS

**Technical specifications**

OL(F) series

OLS(F) series

OVL series

OV-D2 series

NSL series

LDX series

# 16:9 LED video walls
## OL(F) series
## 3rd generation LEDs

| SPECIFICATIONS | | | OL-510 | OL-521 | OL-710 |
|---|---|---|---|---|---|
| | | |  |  |  |
| | | | WXGA resolution | Full HD resolution | WXGA resolution |
| Screen diagonal | | inch | 50 | 50 | 70 |
| Resolution | | pixel | 1368 x 768 | 1920 x 1080 | 1368 x 768 |
| Absolute resolution | | dpi | 32 | 45 | 22.5 |
| Aspect ratio | | 1 | 16:9 | 16:9 | 16:9 |
| Screen | | type | FXS[1] | FXS[1] | FXS[1] |
| Brightness on screen | FXS, REC709 | Cd/m² | 490 | 490 | 240 |
| Contrast | | dynamic | 560,000:1 | 560,000:1 | 560,000:1 |
| Max color gamut | | % of EBU | 165 | 165 | 165 |
| White point | | K | 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary |
| Color sequence | | x frame rate | 24 | 24 | 24 |
| Color control | | type | Sense[6] | Sense[6] | Sense[6] |
| Internal color processing | | bit | 3x24 | 3x24 | 3x24 |
| Color measurement device | | type | Spectrometer | Spectrometer | Spectrometer |
| Color measurement | | color data points | 256 | 256 | 256 |
| Light source | | type | LED | LED | LED |
| Redundancy of lightsource | | n-fold | 6 | 6 | 6 |
| Lifetime of light source | | h | 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 |
| Access mode | | type | back | back | back |
| Geometry alignment | | type | motorized | motorized | motorized |
| Power consumption | | eco \| typ \| max W | 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 |
| On board web server | | | ✓ | ✓ | ✓ |
| Wall control PC | | | ✓ | ✓ | ✓ |
| Web service API | | | ✓ | ✓ | ✓ |
| Connectivity | | type | 2x dual DVI in/out | 2x dual DVI in/out | 2x dual DVI in/out |
| Screen gap (@ 25°C) | | Hor. \| vert. mm | 0.8 \| 0.5 | 0.8 \| 0.5 | 1.0 \| 0.7 |
| Screen gap (@ 25°C) | | Hor. \| vert. inch | 0.03 \| 0.02 | 0.03 \| 0.02 | 0.04 \| 0.03 |
| Screen width | | mm | 1,088 | 1,088 | 1,550 |
| Screen height | | mm | 612 | 612 | 872 |
| Depth | | mm | 454 | 454 | 622 |
| Weight | | kg | 44 | 44 | 66 |
| Screen width | | inch | 42.8 | 42.8 | 61 |
| Screen height | | inch | 24.1 | 24.1 | 34.3 |
| Depth | | inch | 17.9 | 17.9 | 24.5 |
| Weight | | lbs | 97 | 97 | 146 |

[1] available alternative screens for video walls: FXS (standard), HVA, High Gain
For other dimensions, please contact your sales representative.

| OL-721 | OLF-510 | OLF-521 | OLF-710 | OLF-721 |
|---|---|---|---|---|
|  |  |  |  |  |
| **Full HD resolution** | **WXGA resolution** | **Full HD resolution** | **WXGA resolution** | **Full HD resolution** |
| 70 | 50 | 50 | 70 | 70 |
| 1920 x 1080 | 1368 x 768 | 1920 x 1080 | 1368 x 768 | 1920 x 1080 |
| 31.5 | 32 | 45 | 22.5 | 31.5 |
| 16:9 | 16:9 | 16:9 | 16:9 | 16:9 |
| FXS[1] | FXS[1] | FXS[1] | FXS[1] | FXS[1] |
| 240 | 490 | 490 | 240 | 240 |
| 560,000:1 | 560,000:1 | 560,000:1 | 560,000:1 | 560,000:1 |
| 165 | 165 | 165 | 165 | 165 |
| 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary | 2,300 \| 6,500 \| 9,300 \| arbitrary |
| 24 | 24 | 24 | 24 | 24 |
| Sense[6] | Sense[6] | Sense[6] | Sense[6] | Sense[6] |
| 3x24 | 3x24 | 3x24 | 3x24 | 3x24 |
| Spectrometer | Spectrometer | Spectrometer | Spectrometer | Spectrometer |
| 256 | 256 | 256 | 256 | 256 |
| LED | LED | LED | LED | LED |
| 6 | 6 | 6 | 6 | 6 |
| 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 |
| back | front and back | front and back | front and back | front and back |
| motorized | motorized | motorized | motorized | motorized |
| 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 |
| ✓ | ✓ | ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ | ✓ | ✓ |
| 2x dual DVI in/out | 2x dual DVI in/out | 2x dual DVI in/out | 2x dual DVI in/out | 2x dual DVI in/out |
| 1.0 \| 0.7 | 1.8 \| 1.1 | 1.8 \| 1.1 | 2.3 \| 1.6 | 2.3 \| 1.6 |
| 0.04 \| 0.03 | 0.07 \| 0.05 | 0.07 \| 0.05 | 0.09 \| 0.07 | 0.09 \| 0.07 |
| 1,550 | 1,088 | 1,088 | 1,550 | 1,550 |
| 872 | 612 | 612 | 872 | 872 |
| 622 | 454 | 454 | 622 | 622 |
| 66 | 53 | 53 | 74 | 74 |
| 61 | 42.8 | 42.8 | 61 | 61 |
| 34.3 | 24.1 | 24.1 | 34.3 | 34.3 |
| 24.5 | 17.9 | 17.9 | 24.5 | 24.5 |
| 146 | 117 | 117 | 163 | 163 |

# 16:9 3D LED video walls
## OLS(F) series
## 3rd generation LEDs

| SPECIFICATIONS | | | OLS-521 | OLS-721 | OLSF-521 |
|---|---|---|---|---|---|
| | | |  |  |  |
| | | | Full HD resolution | Full HD resolution | Full HD resolution |
| Screen diagonal | | inch | 50 | 70 | 50 |
| Resolution | | pixel | 1920 x 1080 | 1920 x 1080 | 1920 x 1080 |
| Absolute resolution | | dpi | 45 | 31 | 45 |
| Aspect ratio | | 1 | 16:9 | 16:9 | 16:9 |
| Screen | | type | FXS[1] | FXS[1] | FXS[1] |
| Brightness on screen | FXS, REC709 | Cd/m² | 490 \| 330 in 2D \| 3D | 240 \| 160 in 2D \| 3D | 490 \| 330 in 2D \| 3D |
| Contrast | | dynamic | 560,000:1 | 560,000:1 | 560,000:1 |
| Max color gamut | | % of EBU | 165 | 165 | 165 |
| White point | | K | 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary |
| Color sequence | | x frame rate | 24 | 24 | 24 |
| Color control | | type | Sense[6] | Sense[6] | Sense[6] |
| Internal color processing | | bit | 3x24 | 3x24 | 3x24 |
| Color measurement device | | type | Spectrometer | Spectrometer | Spectrometer |
| Color measurement | | color data points | 256 | 256 | 256 |
| Light source | | type | LED | LED | LED |
| Redundancy of lightsource | | n-fold | 6 | 6 | 6 |
| Lifetime of light source | | h | 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 |
| Access mode | | type | back | back | front and back |
| Geometry alignment | | type | motorized | motorized | motorized |
| Power consumption | | eco \| typ \| max W | 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 |
| On board web server | | | ✓ | ✓ | ✓ |
| Wall control PC | | | ✓ | ✓ | ✓ |
| Web service API | | | ✓ | ✓ | ✓ |
| Connectivity | | type | 2x dual DVI in/out | 2x dual DVI in/out | 2x dual DVI in/out |
| Screen gap (@ 25°C) | | Hor. \| vert. mm | 0.8 \| 0.5 | 1 \| 0.7 | 1.8 \| 1.5 |
| Screen gap (@ 25°C) | | Hor. \| vert. inch | 0.03 \| 0.02 | 0.04 \| 0.03 | 0.07 \| 0.06 |
| Screen width | | mm | 1,088 | 1,550 | 1,088 |
| Screen height | | mm | 612 | 872 | 612 |
| Depth | | mm | 454 | 622 | 454 |
| Weight | | kg | 44 | 63 | 53 |
| Screen width | | inch | 42.8 | 61 | 42.8 |
| Screen height | | inch | 24.1 | 34.3 | 24.1 |
| Depth | | inch | 17.9 | 24.5 | 17.9 |
| Weight | | lbs | 97 | 139 | 117 |

[1] available alternative screens for video walls: FXS (standard), HVA, High Gain
For other dimensions, please contact your sales representative.

| OLSF-721 |
| --- |
|  |
| **Full HD resolution** |
| 70 |
| 1920 x 1080 |
| 31 |
| 16:9 |
| FXS[1] |
| 240 \| 160 in 2D \| 3D |
| 560,000:1 |
| 165 |
| 3,200 \| 6,500 \| 9,600 \| arbitrary |
| 24 |
| Sense[6] |
| 3x24 |
| Spectrometer |
| 256 |
| LED |
| 6 |
| 60,000 \| 80,000 |
| front and back |
| motorized |
| 170 \| 230 \| 350 |
| ✓ |
| ✓ |
| ✓ |
| 2x dual DVI in/out |
| 2 \| 1.7 |
| 0.08 \| 0.07 |
| 1,550 |
| 872 |
| 622 |
| 73 |
| 61 |
| 34.3 |
| 24.5 |
| 161 |

# 4:3 LED video walls
## OVL series
## 3rd generation LEDs

| SPECIFICATIONS | | | OVL-508 | OVL-515 | OVL-708 |
|---|---|---|---|---|---|
| | | |  |  |  |
| | | | XGA | SXGA+ | XGA |
| Screen diagonal | | inch | 50 | 50 | 70 |
| Resolution | | pixel | 1024 x 768 | 1400 x 1050 | 1024 x 768 |
| Absolute resolution | | dpi | 26 | 36 | 19 |
| Aspect ratio | | | 4:3 | 4:3 | 4:3 |
| Screen | | type | FXS[1] | FXS[1] | FXS[1] |
| Brightness on screen | FXS, REC709 | Cd/m² | 720 | 720 | 370 |
| Contrast | | dynamic | 1,200,000:1 | 1,200,000:1 | 1,200,000:1 |
| Max color gamut | | % of EBU | 165 | 165 | 165 |
| White point | | K | 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary |
| Color sequence | | x frame rate | 24 | 24 | 24 |
| Color control | | type | Sense[6] | Sense[6] | Sense[6] |
| Internal color processing | | bit | 3x24 | 3x24 | 3x24 |
| Color measurement device | | type | Spectrometer | Spectrometer | Spectrometer |
| Color measurement | | color data points | 256 | 256 | 256 |
| Light source | | type | LED | LED | LED |
| Redundancy of lightsource | | n-fold | 6 | 6 | 6 |
| Lifetime of light source | | typ \| eco hours | 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 |
| Access mode | | type | back | back | back |
| Geometry alignment | | type | manual | manual | manual |
| Power consumption | | eco \| typ \| max W | 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 |
| On board web server | | | ✓ | ✓ | ✓ |
| Wall control PC | | | ✓ | ✓ | ✓ |
| Web service API | | | ✓ | ✓ | ✓ |
| Connectivity | | | 2 x dual DVI in/out | 2 x dual DVI in/out | 2 x dual DVI in/out |
| Screen gap | | Modular screen | < 0.8 mm \| 0.03 inch | < 0.8 mm \| 0.03 inch | < 1.5 mm \| 0.06 inch[3] |
| | | Stitched screen | | | < 0.2 mm \| 0.008 inch[4] |
| Screen width | | mm | 1,000 | 1,000 | 1,400 |
| Screen height | | mm | 750 | 750 | 1,050 |
| Depth | | mm | 734 | 734 | 899 |
| Weight | | kg | 65 | 65 | 101.5 |
| Screen width | | inch | 39.4 | 39.4 | 55.1 |
| Screen height | | inch | 29.5 | 29.5 | 41.3 |
| Depth | | inch | 28.9 | 28.9 | 35.4 |
| Weight | | lbs | 143 | 143 | 224 |

[1] available alternative screens for video walls: FXS (high brightness, excellent viewing angle), High Gain (ultimate brightness, medium viewing angle)
[2] ZeroGap technology
[3] for optimal modular screen
[4] by patented stitch concept

| OVL-715 | OVL-808 | OVL-815 |
|---|---|---|
|  |  |  |
| SXGA+ | XGA | SXGA+ |
| 70 | 80 | 80 |
| 1400 x 1050 | 1024 x 768 | 1400 x 1050 |
| 25 | 16 | 22 |
| 4:3 | 4:3 | 4:3 |
| FXS[1] | FXS[1] | FXS[1] |
| 370 | 280 | 280 |
| 1,200,000:1 | 1,200,000:1 | 1,200,000:1 |
| 165 | 165 | 165 |
| 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary | 3,200 \| 6,500 \| 9,600 \| arbitrary |
| 24 | 24 | 24 |
| Sense[6] | Sense[6] | Sense[6] |
| 3x24 | 3x24 | 3x24 |
| Spectrometer | Spectrometer | Spectrometer |
| 256 | 256 | 256 |
| LED | LED | LED |
| 6 | 6 | 6 |
| 60,000 \| 80,000 | 60,000 \| 80,000 | 60,000 \| 80,000 |
| back | back | back |
| manual | manual | manual |
| 170 \| 230 \| 350 | 170 \| 230 \| 350 | 170 \| 230 \| 350 |
| ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ |
| 2 x dual DVI in/out | 2 x dual DVI in/out | 2 x dual DVI in/out |
| < 1.5 mm \| 0.06 inch[3] | < 2 mm \| 0.08 inch[3] | < 2 mm \| 0.08 inch[3] |
| < 0.2 mm \| 0.008 inch[4] | < 0.2 mm \| 0.008 inch[4] | < 0.2 mm \| 0.008 inch[4] |
| 1,400 | 1,600 | 1,600 |
| 1,050 | 1,200 | 1,200 |
| 899 | 1,023 | 1,023 |
| 101.5 | 131.3 | 131.3 |
| 55.1 | 63 | 63 |
| 41.3 | 47.2 | 47.2 |
| 35.4 | 40.3 | 40.3 |
| 224 | 289 | 289 |

# Lamp video walls
## OV-D2 series

| SPECIFICATIONS | | OV-508 | OV-513 | OV-515 | OV-708 |
|---|---|---|---|---|---|
| | |  |  |  |  |
| | | XGA | SXGA | SXGA+ | XGA |
| Screen diagonal | inch | 50 | 50 | 50 | 70 |
| Resolution | pixel | 1024 x 768 | 1280 x 1024 | 1400 x 1050 | 1024 x 768 |
| Absolute resolution | dpi | 26 | 33 | 36 | 19 |
| Aspect ratio | | 4:3 | 5:4 | 4:3 | 4:3 |
| Screen | type | HVA[1] | HVA[1] | HVA[1] | HVA[1] |
| Brightness on screen | Cd/m² 120 \| 132 \| 180 | 290 \| 320 \| 435 | 270 \| 300 \| 405 | 325 \| 355 \| 485 | 145 \| 160 \| 215 |
| Contrast | dynamic | 4,800:1 | 5,100:1 | 5,100:1 | 4,800:1 |
| Max color gamut | % of EBU | 100 | 100 | 100 | 100 |
| White point | K | 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) |
| Color sequence | x frame rate | 3 | 3 | 3 | 3 |
| Color control | type | Sense[6] | Sense[6] | Sense[6] | Sense[6] |
| Internal color processing | bit | 3x13 | 3x13 | 3x13 | 3x13 |
| Color measurement device | type | color sensor | color sensor | color sensor | color sensor |
| Color measurement | color data points | 3 | 3 | 3 | 3 |
| Light source | type | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 |
| Redundancy of lightsource | n-fold | dual | dual | dual | dual |
| Lifetime of light source | hours 120 \| 132 \| 180 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 |
| Access mode | type | back | back | back | back |
| Geometry alignment | type | manual | manual | manual | manual |
| Power consumption | W 120 \| 132 \| 180 | 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 |
| On board web server | | ✓ | ✓ | ✓ | ✓ |
| Wall control PC | | ✓ | ✓ | ✓ | ✓ |
| Web service API | | ✓ | ✓ | ✓ | ✓ |
| Connectivity | | 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out |
| | | 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out |
| Screen gap | Modular screen | < 0.8 mm/0.03 inch | < 0.8 mm/0.03 inch | < 0.8 mm/0.03 inch | < 1.5 mm/0.06 inch[4] |
| | Stitched screen | 0 mm/0 inch[2] | 0 mm/0 inch[2] | 0 mm/0 inch[2] | < 0.2 mm/0.008 inch[3] |
| Screen width | mm | 1,000 | 1,000 | 1,000 | 1,400 |
| Screen height | mm | 750 | 800 | 750 | 1,050 |
| Depth | mm | 734 | 715 | 734 | 899 |
| Weight | kg | 65 | 68.5 | 65 | 101.5 |
| Screen width | inch | 39.4 | 39.4 | 39.4 | 55.1 |
| Screen height | inch | 29.5 | 29.5 | 29.5 | 41.3 |
| Depth | inch | 28.9 | 28.1 | 28.9 | 35.4 |
| Weight | lbs | 143 | 151 | 143 | 224 |

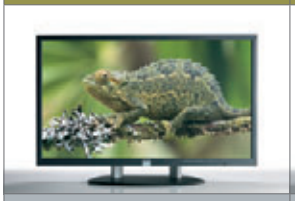
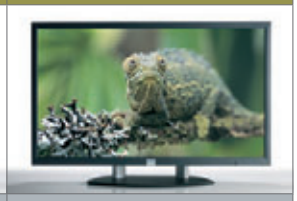
[1] available alternative screens for video walls: HVA standard (normal brightness, excellent viewing angle), HVM (medium brightness, wide viewing angle), HVX (high brightness, medium viewing angle)
[2] ZeroGap technology
[3] by patented stitch concept
[4] for optimal modular screen

| OV-713 | OV-715 | OV-808 | OV-815 | OV-1008 | OV-1015 |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| SXGA | SXGA+ | XGA | SXGA+ | XGA | SXGA+ |
| 70 | 70 | 80 | 80 | 100 | 100 |
| 1280 x 1024 | 1400 x 1050 | 1024 x 768 | 1400 x 1050 | 1024 x 768 | 1400 x 1050 |
| 23 | 25 | 16 | 22 | 13 | 17.5 |
| 5:4 | 4:3 | 4:3 | 4:3 | 4:3 | 4:3 |
| HVA[1] | HVA[1] | HVA[1] | HVA[1] | HVA[1] | HVA[1] |
| 140 \| 150 \| 165 | 170 \| 185 \| 245 | 115 \| 125 \| 170 | 125 \| 140 \| 190 | 165 \| 180 \| 250 | 185 \| 206 \| 280 |
| 5,100:1 | 5,100:1 | 4,800:1 | 5,100:1 | 4,800:1 | 5,100:1 |
| 100 | 100 | 100 | 100 | 100 | 100 |
| 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) | 6,500 (3,200) |
| 3 | 3 | 3 | 3 | 3 | 3 |
| Sense[6] | Sense[6] | Sense[6] | Sense[6] | Sense[6] | Sense[6] |
| 3x13 | 3x13 | 3x13 | 3x13 | 3x13 | 3x13 |
| color sensor | color sensor | color sensor | color sensor | color sensor | color sensor |
| 3 | 3 | 3 | 3 | 3 | 3 |
| UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 | UHP 120 \| 132 \| 180 |
| dual | dual | dual | dual | dual | dual |
| 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 | 10,000 \| 6,000 \| 6,000 |
| back | back | back | back | back | back |
| manual | manual | manual | manual | manual | manual |
| 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 | 390 \| 430 \| 550 |
| ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out | 1 x DVI-D in/out |
| 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out | 1 x dual DVI in/out |
| < 1.5 mm/0.06 inch[4] | < 1.5 mm/0.06 inch[4] | | | | |
| < 0.2 mm/0.008 inch[3] | < 0.2 mm/0.008 inch[3] | < 0.2 mm/0.008 inch[3] | < 0.2 mm/0.008 inch[3] | < 0.2 mm/0.008 inch[3] | < 0.2 mm/0.008 inch[3] |
| 1,400 | 1,400 | 1,600 | 1,600 | 2,032 | 2,032 |
| 1,120 | 1,050 | 1,200 | 1,200 | 1,524 | 1,524 |
| 973 | 899 | 1,023 | 1,023 | 1,400 | 1,400 |
| 108.5 | 101.5 | 131.3 | 131.3 | 273.5 | 273.5 |
| 55.1 | 55.1 | 63 | 63 | 80 | 80 |
| 44.1 | 41.3 | 47.2 | 47.2 | 60.2 | 60.2 |
| 38.3 | 35.4 | 40.3 | 40.3 | 55.1 | 55.1 |
| 239 | 224 | 289 | 289 | 602 | 602 |

# Narrow bezel
# LCD video walls
## NSL series

| SPECIFICATIONS | | NSL-4601 | NSL-5521 |
|---|---|---|---|
| | |  |  |
| | | WXGA | Full HD |
| Backlight | Type | CCFL | Direct LED |
| Screen diagonal | Inch | 46 | 55 |
| Resolution | Pixel | 1366 x 768 | 1920 x 1080 |
| Absolute resolution | dpi | 35 | 40 |
| Brightness | typ \| max Cd/m² | 500 \| 700 | 500 \| 700 |
| Screen technology | Type | LCD | LCD |
| Contrast | | 3,000:1 (typ.) | 3,000:1 (typ.) |
| Internal color processing | | 10 bit color resolution | 10 bit color resolution |
| Light source lifetime | hours | 50,000 | 50,000 |
| Power consumption | typ \| max W | 130 \| 300 | 130 \| 300 |
| Wall control | | NSL Control Manager software | NSL Control Manager software |
| Connectivity | | VGA in/out | VGA in/out |
| | | DVI-D in/out | DVI-D in/out with HDCP |
| | | HDMI input | HDMI type A in/out |
| | | Component in/out | |
| | | S-video in/out | S-video in/out |
| | | CVBS in/out (PAL/NTSC) | CVBS in/out (PAL/NTSC) |
| Screen gap | mm \| inch | < 6.7 \| 0.264 | 1.9 \| 0.075 and 3.8 \| 0.15 |
| Screen width | mm | 1,026.1 | 1,215.3 |
| Screen height | mm | 580.2 | 686.1 |
| Depth | mm | 98 | 98.2 |
| Weight (net/gross) | kg | 29.8 \| 35.2 | 35 \| 48.5 |
| Screen width | inch | 40.4 | 47.8 |
| Screen height | inch | 22.8 | 27 |
| Depth | inch | 3.9 | 3.9 |
| Weight (net/gross) | lbs | 65.7 \| 77.6 | 77.3 \| 107.1 |
| Regulation compliance | Type | CE, CCC, ROHS, TUV, cTUVus | CE, CCC, ROHS, TUV, cTUVus, WEEE |
| Operating temp (min-max) | °C | 5-40 | 0-40 |
| Operating temp (min-max) | °F | 41-104 | 32-104 |
| Humidity | % | 20-80% non-condensing | 20-80% non-condensing |

# Personal video walls
## LDX series

| SPECIFICATIONS | | LDX-46 | LDX-55 |
|---|---|---|---|
| | |  |  |
| | | Full HD | Full HD |
| Backlight | Type | Edge LED | Edge LED |
| Screen diagonal | Inch | 46 | 55 |
| Resolution | Pixel | 1920 x 1080 | 1920 x 1080 |
| Absolute resolution | dpi | 48 | 40 |
| Aspect ratio | | 16:9 | 16:9 |
| Brightness | $Cd/m^2$ | 600 | 600 |
| Screen technology | Type | LCD | LCD |
| Contrast | | 3,000:1 (typ.) | 4,000:1 (typ.) |
| Light source lifetime | hours | 50,000 | 50,000 |
| Power consumption | typ \| max W | 120 \| 220 | 130 \| 240 |
| Wall control | | NSL Control Manager software | NSL Control Manager software |
| Inputs and outputs | | Single hub DVI-D in/out | Single hub DVI-D in/out |
| | | HDMI type A | HDMI type A |
| | | 2x HD-SDI in/out | 2x HD-SDI in/out |
| | | CVBS in/out | CVBS in/out |
| | | VGA in/out | VGA in/out |
| | | 3x component video in/out | 3x component video in/out |
| | | S-video in/out | S-video in/out |
| Screen width | mm | 1,075 | 1,267 |
| Screen height | mm | 639 | 749 |
| Depth | mm | 85 | 81 |
| Weight (net/gross) | kg | 28 | 35 |
| Screen width | inch | 42.3 | 49.9 |
| Screen height | inch | 25.2 | 29.5 |
| Depth | inch | 3.3 | 3.2 |
| Weight (net/gross) | lbs | 61.8 | 77.3 |
| Regulation compliance | Type | CE, TÜV, cTÜVus, CCC, ROHS, WEEE | CE, TÜV, cTÜVus, CCC, ROHS, WEEE |
| Operating temp (min-max) | °C | 0-40 | 0-40 |
| Operating temp (min-max) | °F | 32-104 | 32-104 |
| Humidity | % | 10-90% non-condensing | 10-90% non-condensing |

| | Screen size | | | | | | Technology | | |
|---|---|---|---|---|---|---|---|---|---|
| SERIES | 46 inch | 50 inch | 55 inch | 70 inch | 80 inch | 100 inch | lamp-lit | LED-lit | LCD |
| OL | 16:9 LED VIDEO WALLS | | | | | | | | |
| **OL-510** | | ✔ | | | | | | ✔ | |
| **OL-521** | | ✔ | | | | | | ✔ | |
| **OL-710** | | | | ✔ | | | | ✔ | |
| **OL-721** | | | | ✔ | | | | ✔ | |
| OLF | 16:9 LED VIDEO WALLS WITH FRONT ACCESS | | | | | | | | |
| **OLF-510** | | ✔ | | | | | | ✔ | |
| **OLF-521** | | ✔ | | | | | | ✔ | |
| **OLF-710** | | | | ✔ | | | | ✔ | |
| **OLF-721** | | | | ✔ | | | | ✔ | |
| OLS | 16:9 3D LED VIDEO WALLS | | | | | | | | |
| **OLS-521** | | ✔ | | | | | | ✔ | |
| **OLSF-521** | | ✔ | | | | | | ✔ | |
| **OLS-721** | | | | ✔ | | | | ✔ | |
| **OLSF-721** | | | | ✔ | | | | ✔ | |
| OVL | 4:3 LED VIDEO WALLS | | | | | | | | |
| **OVL-508** | | ✔ | | | | | | ✔ | |
| **OVL-515** | | ✔ | | | | | | ✔ | |
| **OVL-708** | | | | ✔ | | | | ✔ | |
| **OVL-715** | | | | ✔ | | | | ✔ | |
| **OVL-808** | | | | | ✔ | | | ✔ | |
| **OVL-815** | | | | | ✔ | | | ✔ | |
| OV-D2 | LAMP VIDEO WALLS | | | | | | | | |
| **OV-508** | | ✔ | | | | | ✔ | | |
| **OV-513** | | ✔ | | | | | ✔ | | |
| **OV-515** | | ✔ | | | | | ✔ | | |
| **OV-708** | | | | ✔ | | | ✔ | | |
| **OV-713** | | | | ✔ | | | ✔ | | |
| **OV-715** | | | | ✔ | | | ✔ | | |
| **OV-1008** | | | | | | ✔ | ✔ | | |
| **OV-1015** | | | | | | ✔ | ✔ | | |
| NSL | LCD VIDEO WALLS: NARROW-BEZEL LCD | | | | | | | | |
| **NSL-4601** | ✔ | | | | | | | | ✔ |
| **NSL-5521** | | | ✔ | | | | | | ✔ |
| LDX | PERSONAL VIDEO WALLS: WIDE SCREEN LCD DISPLAYS | | | | | | | | |
| **LDX-46** | ✔ | | | | | | | | ✔ |
| **LDX-55** | | | ✔ | | | | | | ✔ |

| Ratio | | | Resolution | | | | | Access | 3D |
|---|---|---|---|---|---|---|---|---|---|
| 4:3 | 5:4 | 16:9 | XGA | WXGA | SXGA | SXGA+ | full HD | front | stereo |
| | | | | | | | | | |
| | | ✔ | | ✔ | | | | | |
| | | ✔ | | | | | ✔ | | |
| | | ✔ | | ✔ | | | | | |
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# Icons explained

Throughout this catalog, you'll often find icons next to the pictures of our products. In case of doubt, please refer to the list below for their explanation:




3D stereoscopy option




Redundant lamp technology




Sense[6] technology with spectrometer for higher accuracy




Screen aspect ratio of 4:3




Front accessible




SXGA+ resolution




Screen aspect ratio of 16:9




Full HD resolution




SXGA+ resolution




Designed for 24/7 mission critical applications




Additional HD-SDI inputs




WXGA resolution




46" screen




Screen with LCD technology




XGA resolution




55" screen




LED-lit rear-projection technology




Ultra-wide viewing angle




Auto align




Redundant




Web server for remote access




Compact




Scalable technology allowing bigger video walls




Liquid cooled engine




Sense[6] auto-calibration of colors and brightness

## Find the video wall display you need in just two clicks!

Go to our online product finder at

www.barco.com/en/controlrooms/videowall_productfinder



# About Barco

Barco designs, manufactures and markets innovative hard- and software visualization solutions for a variety of applications, such as traffic management, surveillance, command and control, broadcasting and telecom networks, and utilities and process control. With Barco's visualization solutions, control center operators are offered a real-time collaborative work experience for monitoring, response dispatching and coordination, access and flow control, recording, and overall systems control for 24/7 operations.

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