effect engineering

enabling excellent effects

Reference activities

On the following pages you will find examples of products and single modules.
During the development of these products hence the mentioned modules Frank Fischer was responsible as a mechanical designer and / or project manager either employed or freelance within the development team of the customer.

Content

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Bang & Olufsen BeoSound 9000

CD-changer with capacity of 6 discs. The instrument can be used in different orientations (e.g. horizontal on a board, vertical on a pedestal or hanging on a wall).
A modern classic which was produced from 1996 to 2011.
The short time interval required to switch between different CD's, the unique use concept as well as the "open" instrument design provide a user experience, which is very different from any other CD-changer.

Module:
Clamper module

Tasks and responsibilities:
- Mechanical design of the clamper module
- Integration of electronic components (such as PCBA and optical sensors)
- Definition of intersections to surrounding modules together with the responsible mechanical designers

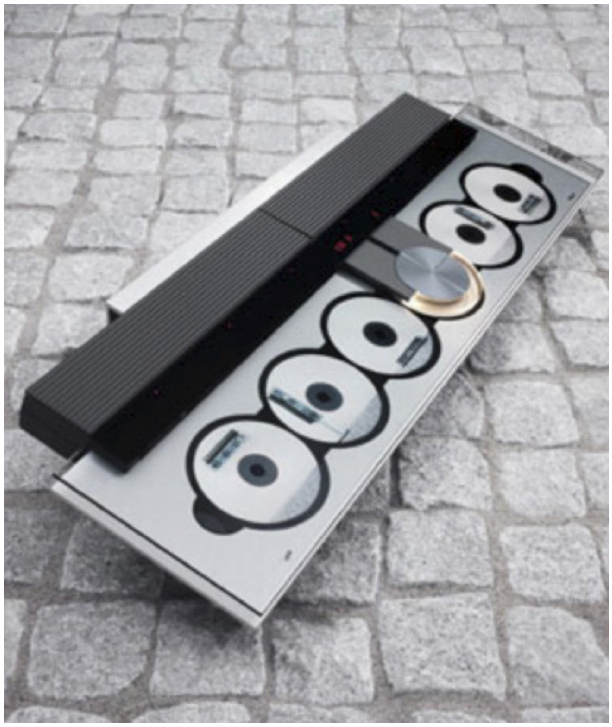

Fig. 1: Bang & Olufsen BeoSound 9000
Source: Bang & Olufsen a/s

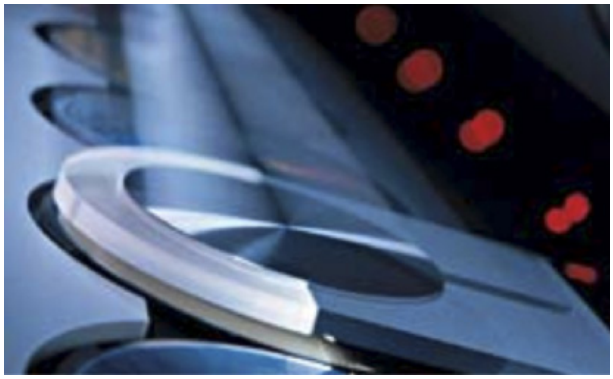

Fig. 2: Clamper-Modul BeoSound 9000
Source: Bang & Olufsen a/s

Barco UniSee® Mount

Mounting structure for a 55” LCD panel for installation of professional video walls consisting of several identical modules.
Used for example in uninterrupted continuous operation in control rooms for traffic supervision or infrastructure surveillance or in museums.

Barco UniSee Mount incorporates a kinematic mechanism supporting numerous innovative unique features of the mount, such as amongst others:

- a virtually seamless alignment of frameless panels
- fast and easy installation
- easy access to each panel (also the one in the middle) from the front during service

Tasks and responsibilities:

- Development of the mounting structure within the project team from the start of concept development up to test of first out-of-tool-prototypes
- Development of the kinematic mechanism and integration into the mounting structures modules

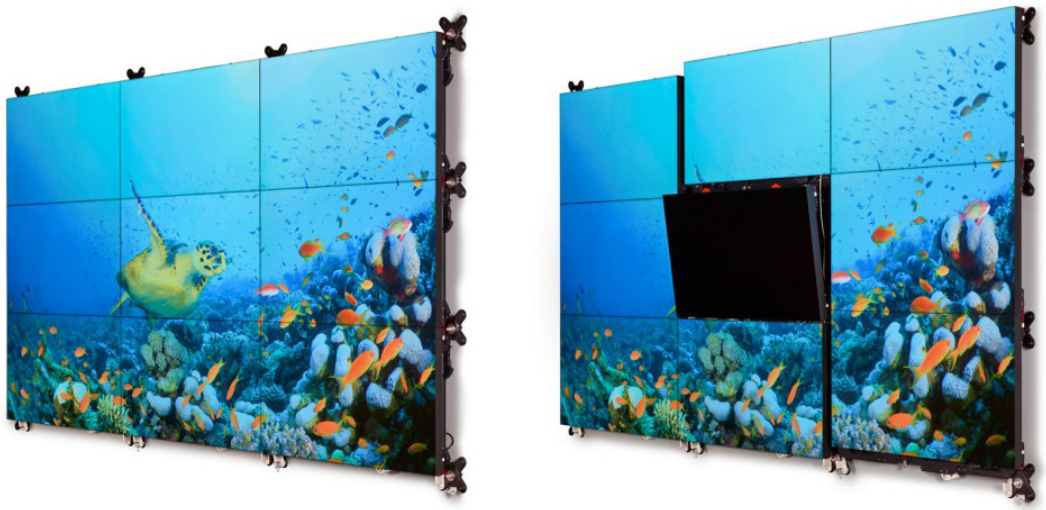

Fig. 3: Barco UniSee, Installation consisting of 3x3 panels;
left: positioning of panels in normal use;
right: middle panel in service position For servicing or replacing the middle panel first of all whole columns of panels are moved. The panel to be serviced then is selected by activating a lever at the corresponding mount and blocks of panels within the column are moved by gravity upon pushing a button.
Thereby a gap is created around the panel to be serviced. In a guided movement the panel is pulled out of the plane to the front for easy removal.
Source: Barco N.V.

Link to the official Barco product video:
http://www.barco.com/en/unisee

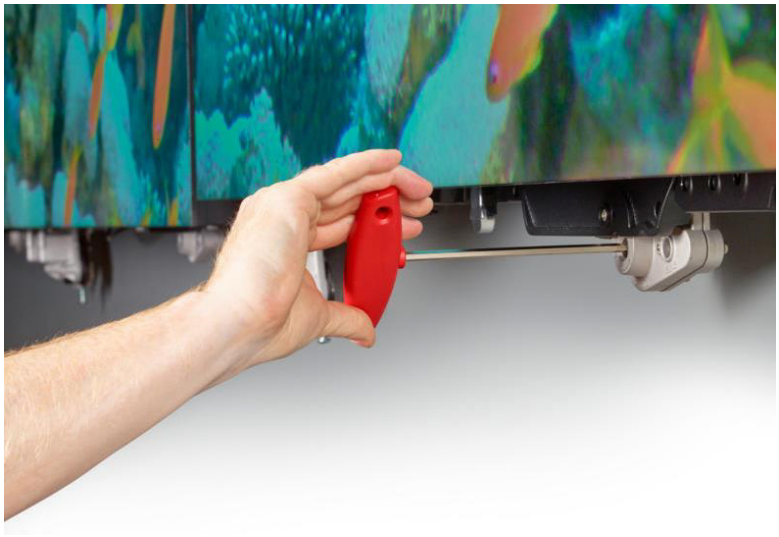

Fig. 4: Drive module to move the panels. To enable servicing, whole columns are moved easily by using a simple wrench.
Source: Barco N.V.

Tecan LS Reloaded™

Fluorescence laser scanner for measurements of microarrays in the life sciences. The instrument is characterised by high flexibility regarding compatibility against different types of samples and coexistent high optical resolution. Samples may for instance be arranged on microscope slides (up to 4 slides in an adapter) or on a membrane with a size of up to 105 mm x 75 mm.

Modules:

- Tray transport
- Housing

Tasks and responsibilities:

- Coordination of external mechanical designers and suppliers
- Concept development of tray transport
- Detailed engineering of large areas of the tray transport (excl. preparation of drawings)
- Concept development of the movement of the housings flap: definition of the travel and position of the hinges

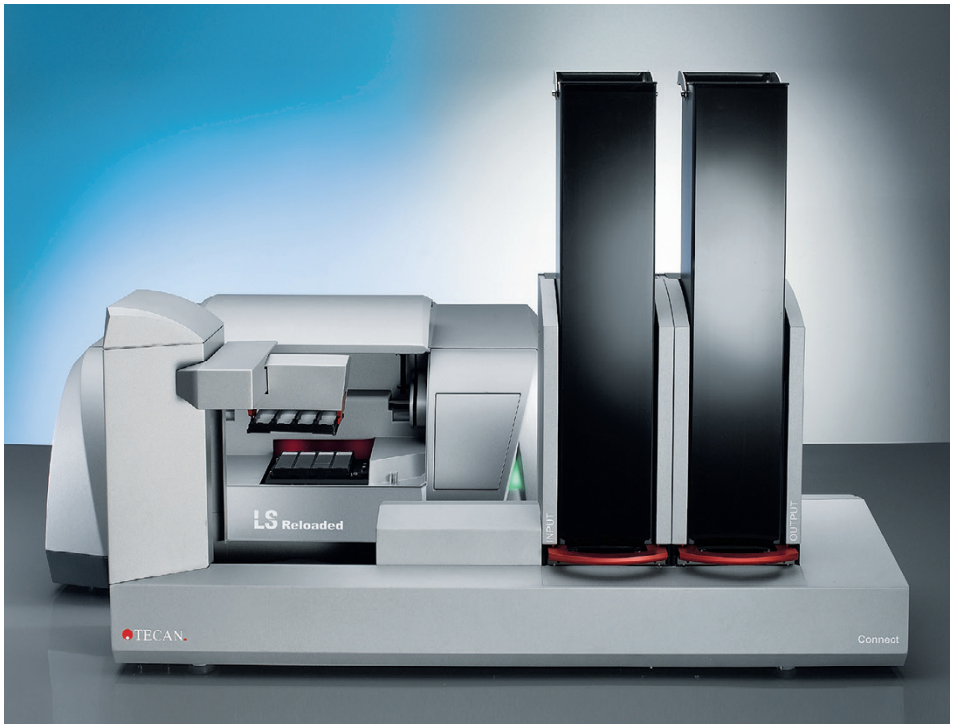

Fig. 5: Tecan Connect™ (in front) in combination with Tecan LS Reloaded (background)
Tecan Connect: left: tower with gripper; right: two magazines to store microplates
Photo courtesy of Tecan Group Ltd.

Tecan Connect™

Microplate stacker for automated batch processing of microplates in combination with e.g. a microplate reader or a fluorescence laser scanner

Modules:

Complete instrument

Tasks and responsibilities:

- Project management with responsibility to meet the targets for costs, quality and time to market
- Technical leadership of the project team consisting of members from R&D, logistics, technical documentation, and production engineering
- Concept development with focus on a very high operating reliability also in case of external disturbances such as power failure or malfunction of connected instruments
- Mechanical design

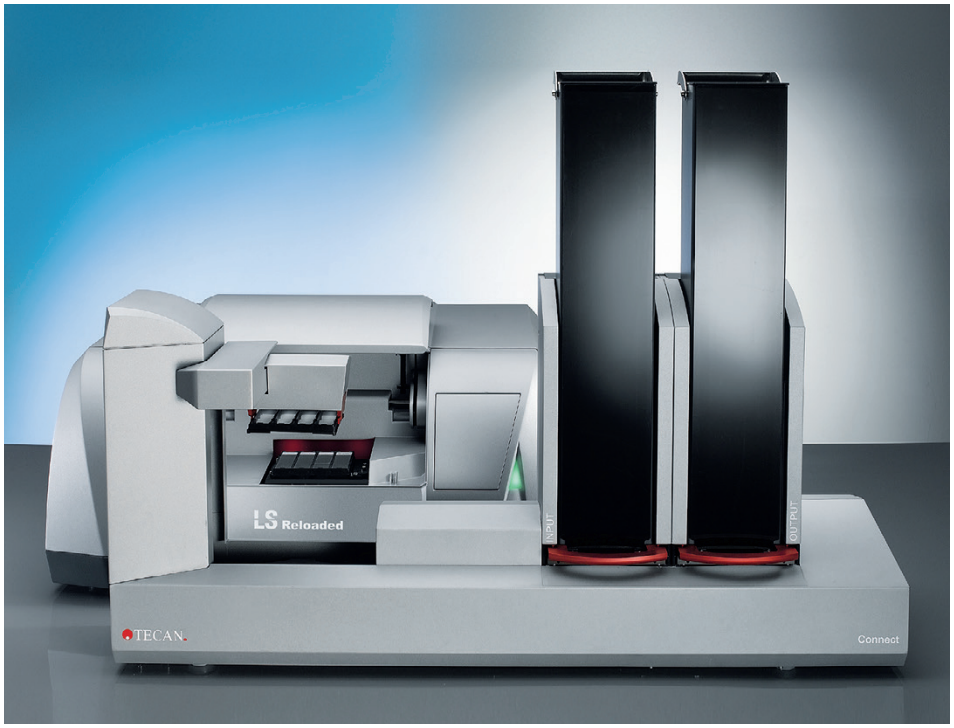

Fig. 6: Tecan Connect (in front) in combination with Tecan LS Reloaded™ (background)
Tecan Connect: left: tower with gripper; right: two magazines to store microplates
Photo courtesy of Tecan Group Ltd.

Tecan PowerScanner™

Fluorescence laser scanner for measurements of microarrays on microscope slides in the life sciences.
The integrated magazine offers a very high throughput in automated batch processing of for instance DNA-samples.

Modules:

- Magazine for microscope slides
- Transport mechanism for magazine
- Part of the housing incl. mechanism for the movement of the flap (shape of the movement is adapted to the design and the shape of the housing)

Tasks and responsibilities:

- Concept development of the above modules
- Mechanical design of the above modules

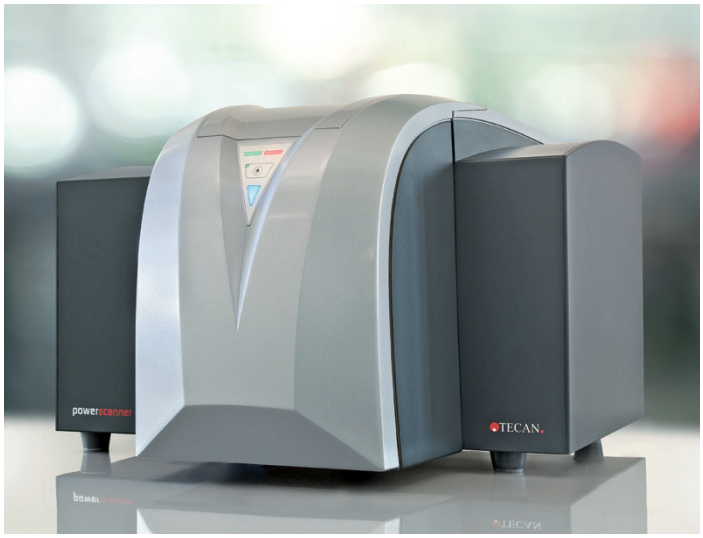

Fig. 7: Tecan PowerScanner
Photo courtesy of Tecan Group Ltd.

Fig. 8: Tecan PowerScanner: instrument flap opened. Linear movement of the flap is adapted exactly to the shape of the housing.
Photo courtesy of Tecan Group Ltd.

Tecan Infinite® F50

Reader for optical absorbance measurements of liquid filled microplates.
Designed for ELISA applications in clinical diagnostics for instance in automated processing of HIV-tests.
Infinite F50 is the first instrument of its kind employing a LED as light source, which does not require a change of the light source when switching between different measurement wavelengths.
The very compact instrument is characterised by low power consumption and long lifetime without any need for special maintenance.

Module:
Complete instrument

Tasks and responsibilities:
- Project management with responsibility to meet the targets for costs, quality and time to market
- Technical leadership of the project team consisting of members from R&D, logistics, regulatory affairs, technical documentation, and production engineering
- Selection of and collaboration with Asian suppliers
- Definition of the development concept
- Definition of the concept of the instrument

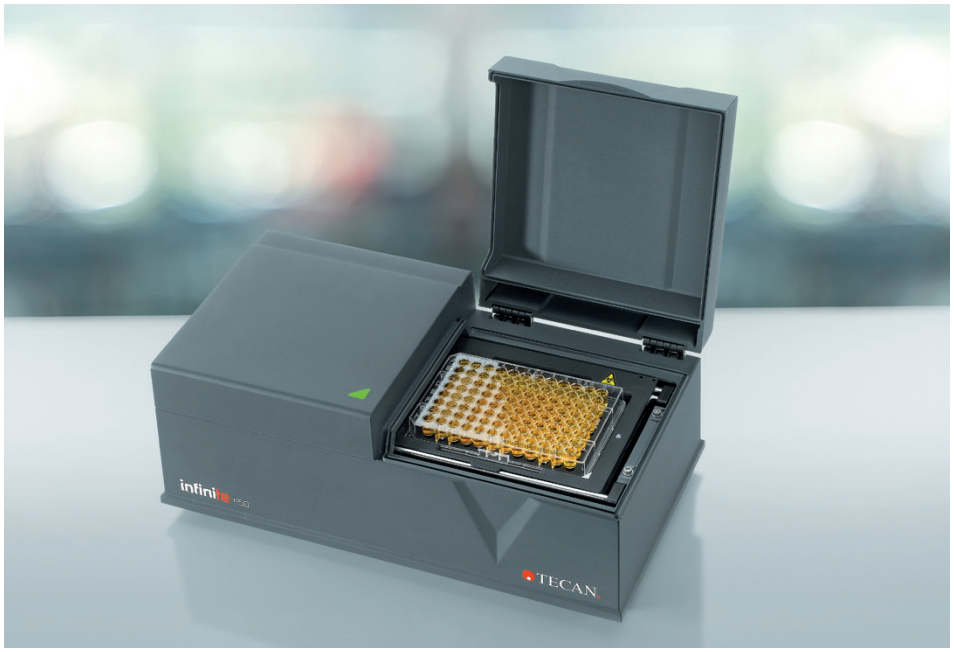

Fig. 9: Tecan Infinite F50
Photo courtesy of Tecan Group Ltd.