

alcons C-series get the whole picture!

the logical next step in Digital Cinema sound reproduction

the market

In today's cinema market, several developments are taking place, that greatly effect the importance of cinema sound reproduction. Developments that are relating to the technical-, commercial- as well as the marketing side of the cinema industry.

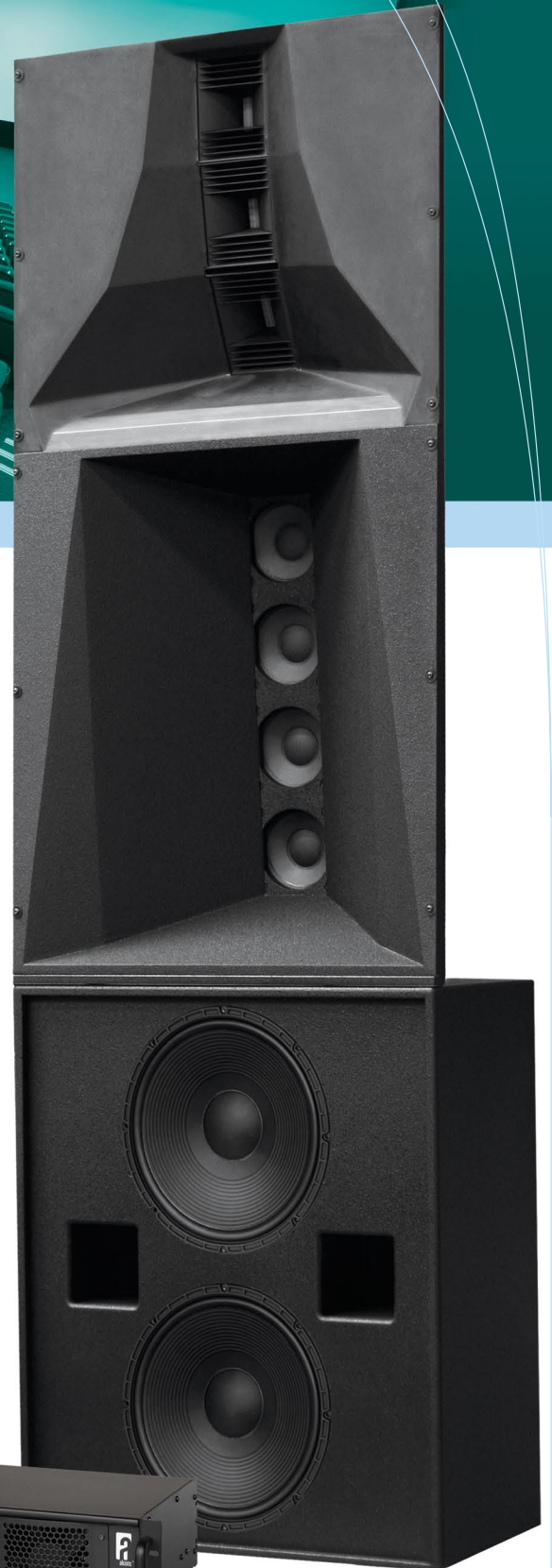
On the technical side, the "buzz-word" over the last few years has been "Digital Cinema". Now with the long-awaited Digital Cinema audio standard being a reality, a new platform has been created with 24-bit resolution, non-compressed (!) audio over up to 99 channels; This offers tremendous opportunities to very significantly raise the quality of cinema sound reproduction. However, in order to meet the intentions of the standard, new thinking is required.

Another (commercial) result of digital cinema is the changing role of the cinema from simply presenting movies, towards "alternative programming" presentations, like live broadcast/transmissions, (video)conferences, global business seminars/presentations, musical events, and more.

The marketing side of the cinema industry sees increased competition between cinema exhibitors. In the increased competition, exhibitors are experiencing that emphasis of quality over price is essential for long-term profitability. They are thus demanding more than "the obvious", also in sound experience, to distinguish themselves from the next-door cinema.

And last, but definitely not least, patrons' expectations have raised tremendously; The combination of "CD-quality" sound/vision (Blue-Ray, DVD, flat-panel TV), together with the sensitive-priced surround home-theatre systems, make cinema compete with the "living-room experience". Cinema has to do utmost efforts to exceed customers expectations.

With these new (digital) developments entering the cinema market, new challenges have arrived for existing equipment; Requirements of the sound system have changed; Speech, music and effect should be reproduced with finest detail and fullest dynamics. With the digital cinema sound standard stating "non-compressed" sound formats, current loudspeaker reproduction systems, utilizing compression-driver technology, are not capable of reproducing all digital cinema has to offer.



ALC2ST

CR4

evolutionary audio solutions™

the company

Alcons Audio is a Dutch company, active in development and manufacturing of professional sound systems for quality-conscious clients in the cinema, installation and touring industry.

The company is recently established (October 2002), this doesn't resemble by far the companies experience in the pro-audio market; Each of the employees ("team members") has, in average, 15+ years experience in the different aspects of development, manufacturing and marketing of professional sound systems.

The R&D department of Alcons Audio features a unique combination of extensive know-how in transducer-, acoustics and system design, as well as DSP and amplifier technology. This combination has led in the past to impressive cinema products, such as world's first ribbon-loaded cinema sound system, first large cinema system with a depth of only 10"/25cm and now, the first large-format cinema system utilizing line-source technology.

Alcons pro-ribbon systems can be found around the globe; Run Run Shaw room BAFTA London, Apollo cinemas Italy, Norwegian Film Institute, Fraunhofer Institute Germany, Pathé cinemas, Filmhouse The Hague, ZOO film studio's Chile, to name just a few.



the product

Understanding the relationship between speaker and amplifier, Alcons Audio now brings an evolutionary cinema sound system program, with speakers, amplifiers and dedicated processing.

Specifically looking at the "end" of the B-chain, current speaker systems are not suitable for reproduction of what digital sources have to offer; Not only frequency response, but also transient response is an important "ingredient" for detail and (speech)intelligibility. And dynamic response is essential in Digital Cinema reproduction, with 24-bit dynamic range. Note that all current sound systems are still based on 90 year old (compression) driver loud-speaker technology for mid/high frequency reproduction!

This is the main reason why Alcons Audio develops its systems with proprietary pro-ribbon technology; A radically different, but proven way of reproducing mid and high frequencies, resulting in HiFi sound quality at digital cinema sound pressure levels.

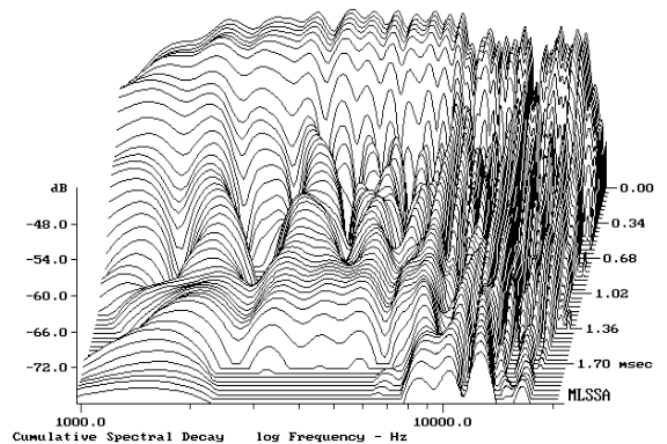


For the first time, both post-production studios as well as high standard cinemas around the globe are able to utilize the unique combination of a (digital) cinema sound system with studio monitor quality;

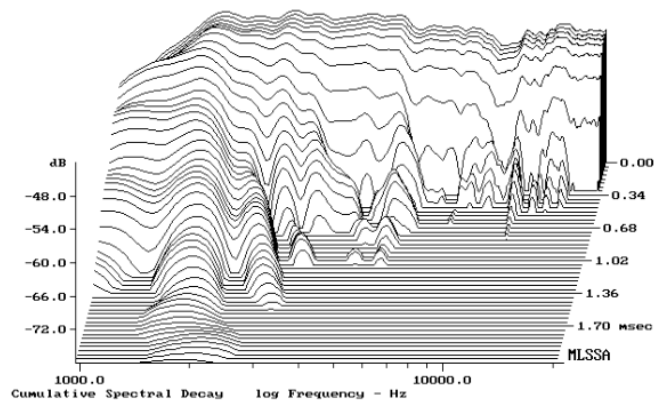
In short; "You see more of the movie with an Alcons Audio cinema sound system!"

Alcons pro-ribbon driver vs. 2" compression driver

Below are two spectral decay ("waterfall") plots, which show the response behaviour of a loudspeaker. The x-axis shows the frequency response from 1000 to 20.000Hz., the y-axis shows level in dB and the z-axis shows the time in milliseconds (decay).



This is the response of a 2" state-of-the-art" compression driver. It is clearly visible that the initial frequency response changes at around 8kHz. The time-(impulse)response shows that the membrane of the speaker is still generating sound, even after the signal has stopped. This is due to the heavy moving mass of the compression driver, which causes "time-smear" and distortion. A light-weighted 1" compression-driver shows similar behavior, but at a higher resonance frequency.



This is the response of the 6" pro-ribbon driver. The initial response remains flat up to the highest frequencies. The time-(impulse)response shows that the membrane of the speaker stands still very soon after the signal has stopped ("high transient response"). This is due to the light-weight moving mass of the ribbon.

main advantages

The Alcons cinema sound systems are arguably the only Digital-Cinema ready cinema systems, for a number of reasons:

HiFi sound at concert SPL! The RBN pro-ribbon drivers have up to 90% less distortion than any conventional mid/high transducer (@ same SPL), because of the lack of a compression chamber and the light weight diaphragm (with integrated voice-coil).

Perfect speech-intelligibility The fast transient response + the lack of compression “threshold” (the level under which the compression driver doesn’t make enough compression to have actual HF output) brings perfect intelligibility and tonal balance at lowest as well as highest SPL’s.

No listening fatigue Another benefit of the superb transient response and the lack of “time-smear” (a result of the slow moving mass/diaphragm at high frequencies) is the lack of listening fatigue, even after prolonged listening hours.

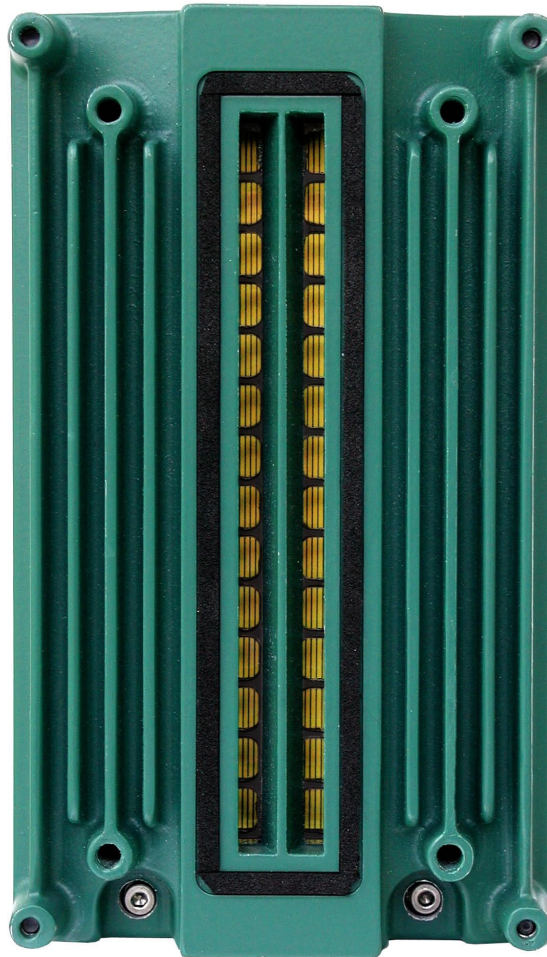
True 90 degree dispersion The RBN pro-ribbon drivers features Alcons’ patented “Real-90” dispersion in the horizontal plane, up to and beyond 20kHz. This offers patrons a much wider stereo “sweet-spot”, thus more people can enjoy true stereo.

Digital dynamics Where conventional (compression driver) technology has an RMS-to-peak ratio of 1:2 (i.e. 75W RMS / 150W peak), Alcons pro-ribbon drivers have an RMS-to-peak ratio of around 1:15 (i.e. 70W RMS / 1000W peak). Together with the ultra-low power compression (resulting from the patented heat management + the direct air contact of the voice-coil) this enables the maximum dynamic range that 24-bit Digital Cinema has to offer.

Note; In practice, the “fragile-pre-sumed” ribbon diaphragm seems to be much stronger than a compression driver diaphragm, as a result from the light weight moving mass; The compression driver starts to break-up at 8kHz. because the mass can’t follow the speed. With “clarity” frequencies around 16kHz (= twice the problem speed) often boosted more than 6dB (= 4x the power!), the ribbon driver handles this without failure, contrary to compression drivers (break-up is most common reason for compression diaphragm blow-up) > see explanation below.

Filat SPL throughout the room by utilizing Alcons’ widely recognized line-source technology, the CR4 reduces the normal (-6dB) reduction of SPL coverage from front to rear, dramatically improving the cinema experience for the audience further away from the screen (“proximity” effect).

Very clean signal path As a result of the flat impedance of the pro-drivers, no impedance correction is needed in the crossover. This allows simpler filter designs, placing fewer parts/obstructions in the signal path, thus offering improved clarity and accuracy of the sound even with passive-filtered systems. The “Current-to-light” driver protection, inaudibly protects the drivers for input overload.



Truly accurate mid and bass response; The Alcons systems are SIS pre-wired for SIS (Signal Integrity Sensing) circuit; In combination with the ALC controller amplifier, influences of long speaker cable lengths (typically for cinema!) are completely compensated for (with damping factor of 10.000).

Maximum and reliable performance The front-accessible SDP processing module in the ALC changes the stereo amp into a dedicated powered controller of the Alcons speakers, offering dedicated excursion protection, system –eq, filtering and power control, for maximum component performance.

Space-economic design The ultra-thin enclosure design (CR1 7”/17cm deep, CR2 10”/25cm, CR4 13,7”/35cm) enable mounting behind any screen. With the moveable mid-high section of CR1 and CR2, the directional frequencies can be aimed at the audience, while still enjoying the shallow system depth.

Maximum mounting flexibility The CR1 and CR2 systems can be stacked or flown or wall-mounted behind the screen. Virtually any set-up is possible.

Extended headroom With system equalizing done by the SDP circuit of the ALC controller-amp (instead of by the passive crossover), the passive Alcons systems deliver up to 4dB more system headroom, starting at 800Hz. It’s combining passive-filter amplifier-efficient powering with active-filter component-efficiency output.

Sustained power output The combination of Class G power amplifier stage with a 210 Joules capacitor bank (ALC4: 400 Joules) makes the ALC deliver super-dynamic and sustained power output for even the most dynamic digital soundtracks.

Easy connection The ALC controller-amplifier features a 15-pin D-connector, that makes connection to processor very simple. The D-connector is fully compatible with existing cinema booth monitors, featuring this type of connector.

More information! For more information please visit www.alconsaudio.com or www.digitalcinemaready.info for product info and recent projects.