

CPD 18 VALTEC™



- ✓ VALTEC™ Variable Acoustic Lens Technology
- ✓ FIRTEC™ electronic beam forming low and mid frequencies
- ✓ 120° horizontal coverage already from 400Hz
- ✓ 0° - 30° variabel vertical dispersion
-15° / +15° tilt angle
- ✓ Optimized impuls-response
- ✓ FIRTEC™ 7-channel DSP
- ✓ 7 power stages with 3000W of undistorted power
- ✓ 134dB peak SPL
- ✓ Real Full Range sound reproduction
- ✓ narrow and unobtrusive silhouette



The new world standard in sound reinforcement.

With the KS **CPD 18** and its smaller sister CPD 14, KS AUDIO has created two tools that belong as main speaker systems in every important venue. They are not just very good all-rounders, KS AUDIO proves that you can get maximum musicality, perfect impulse response and more than excellent speech transmission (STI) out of a single system.

“Everything was just right, down to the smallest detail. Neutrality, imaging, precision and everything else was exactly on point, as one would expect from a very good studio monitor. The difference, however, is that the CPD18 can do it all at PA volume.

Prof. Dr. Anselm Goertz

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At the latest after reading the test report in Production Partner 9/2020, in which none other than Prof. Dr. Anselm Goertz takes a very critical look at the **CPD 18**, one should understand that KS AUDIO has created a masterpiece with the **CPD 18** that is second to none. He sums up his conclusion in two sentences: *"Everything was just right, down to the smallest detail. Neutrality, imaging, precision and everything else was exactly on point, as one would expect from a very good studio monitor. The difference, however, is that the CPD 18 can do it all at PA volume."*

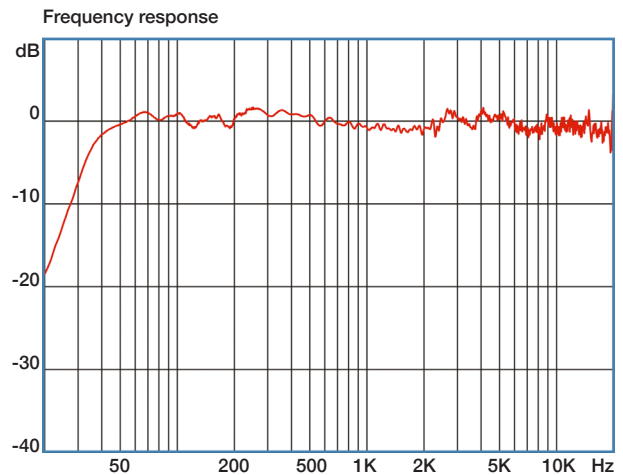
Anyone familiar with loudspeakers knows that this cannot be achieved by using only the best loudspeakers in combination with a perfect system configuration. KS AUDIO does not only focus on a 7 channel active amplifier with the best audio quality (3kWpeak) but especially the unrivalled 7 channel FIRTEC™ controller gives the **CPD 18** its perfect linearity.

In principle, the FIRTEC™ controller works very simply. By creating a little space "in time", result a latency of 6 ms, it becomes possible to correct various problems occurring in the time domain. These are not only time-alignment differences between the components themselves, but relate to the entire frequency band of the loudspeaker including all electronic components and the enclosure. Each **CPD 18** is individually measured so that it is a perfect match. Even if they are purchased at a later time. The system is thus seen as a whole and can even be measured on site using the same technique so that **CPD 18** is seen as a whole with the room.

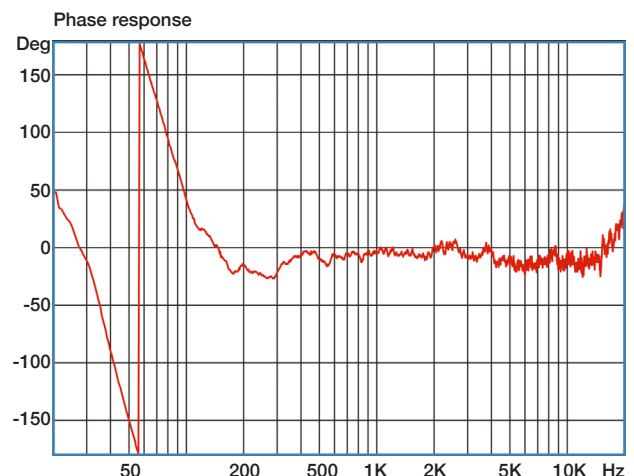
Based on all of the above, the **CPD 18** is already the only right tool, but KS AUDIO didn't finish developing it, and we're taking it one step further:

BEAM-STEERING: VALTEC™

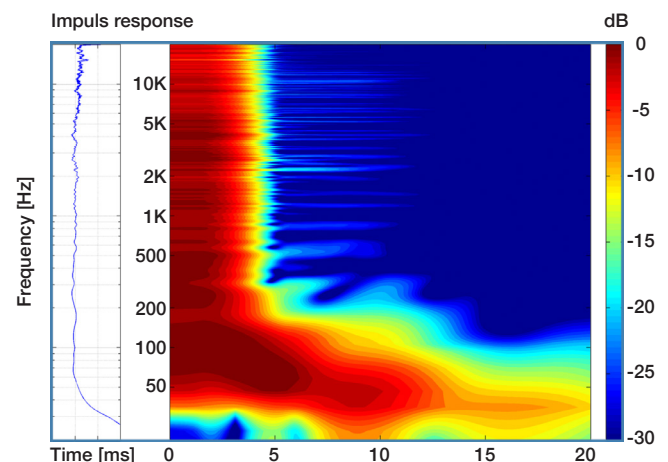
By using two sets of acoustic lenses between the driver and the cylindrical wave shaper, KS AUDIO has succeeded in making the vertical dispersion variable in both beam angle and tilt angle. The beam angle is variable between 0° and 30°, while the tilt angle is variable between 15° upwards and 15° downwards.



Frequency response of the **CPD18** measured at 6 m on axis for a beam setting with 20° vertical dispersion angle and 0° tilt.



Phase response of the **CPD18** with a linear-phase curve from 120 Hz upwards. The latency over all of the **CPD18** is 9 ms.



Spectrogram of the **CPD18** with a uniform and low-resonance decay behaviour.

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By the way, the angle of all other drivers is adjusted electronically to match the angle of the mechanical adjustment of the driver-waveguide unit.

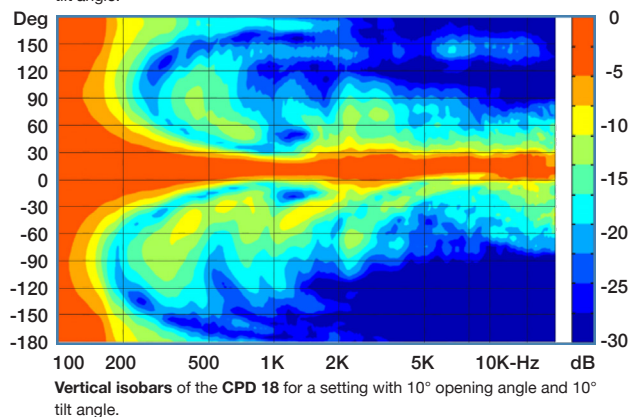
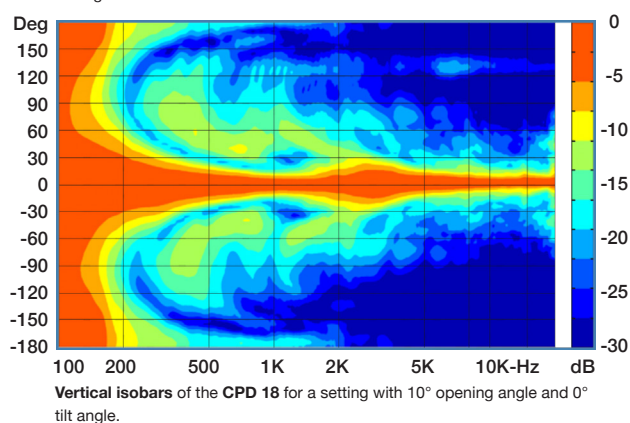
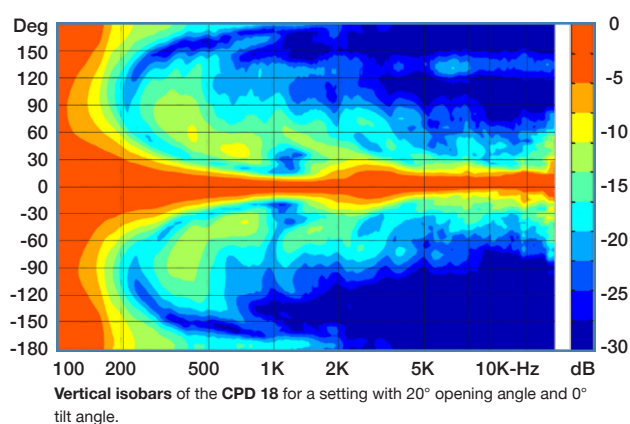
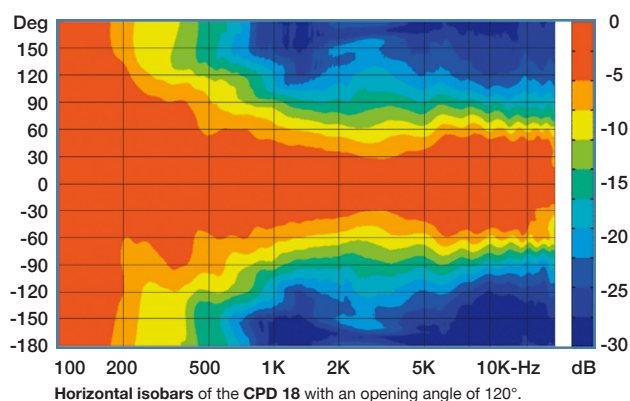
The construction of the sound displacement in the VALTEC™ lenses and the wave-guide of the high frequency emitter and its electromechanical vertical alignment is unique. The result is an even dispersion angle, continuing over the entire frequency bandwidth even down to the crossover point, where no dips and peaks can be observed. The great advantage of VALTEC™ is that the high frequency range unit can be precisely aimed at the audience without sidelobes. This results in fewer reflections and thus more direct energy. As the VALTEC™ angle is set via a menu setting on the back of the **CPD 18**, the angle can be easily adjusted if the room layout is different, e.g. if only the front part of the room is used.

Another advantage is that you can use multiple **CPD 18**s without negative overlap in the vertical range. If you have experience with multiple speakers in a room, even line arrays, you know how deadly the comb filter effect is to sound quality; with VALTEC™ this is a thing of the past.

As already mentioned, the dispersion of the LF and MF ranges is electronically adjusted to the setting selected via the menu. In this case, electronic beam-steering is used. In the wavelength range in which these speakers operate, there is no danger of producing side-lobes.



The only column speakers with true low-end reproduction. There is no need for an extra subwoofer.



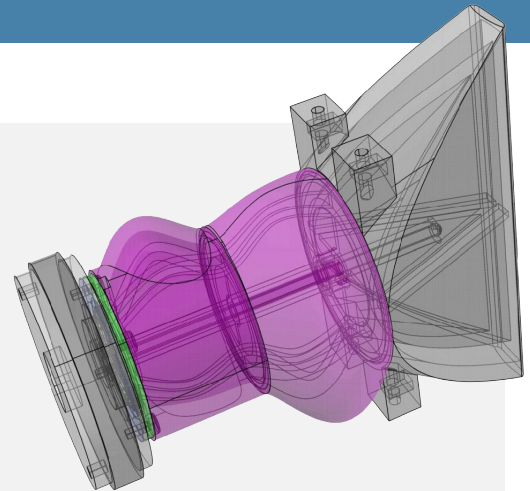
VALTEC™

The designation VALTEC™ stands for "Variable Acoustic Lens Technology" and makes it possible to adjust the opening and inclination (tilt) angle of the sound dispersion from a line source in the path of the sound via two "acoustic lenses".

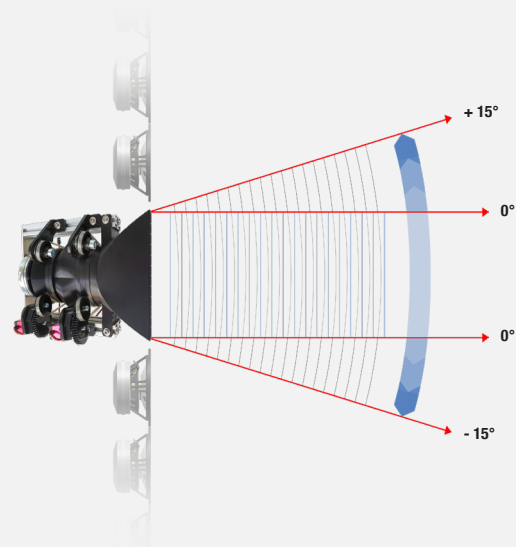
In detail, the acoustic lenses are circular shaped waveguides whose diameter increases towards the centre. Now, however, the individual centre points of the rings are not arranged on a straight line, but on a specific point of each outer radius. The driver radiates into the first acoustic lens, whose output is directly connected to the second lens, which then acts on the waveguide, which finally performs the transformation to the line source. The diversions of the soundwaves through the bellows of the lenses creates the shape of the wavefront of the line source.

Depending on the angle of rotation of the acoustic lenses to each other and to the front waveguide, the curvature and angle of the wavefront emerging from the waveguide can be adjusted.

The drawing of the VALTEC™ waveform principle, viewed from left to right, first the driver, then the first acoustic lens, followed by the second acoustic lens and the final waveguide for creating the line source. The drawing clearly shows that the bellies are only on one side of the lenses. If one now change the setting, respectively rotate the lenses with respect to each other and with respect to the waveguide, so it becomes possible to create a line source where the shape of the wavefront can be changed.



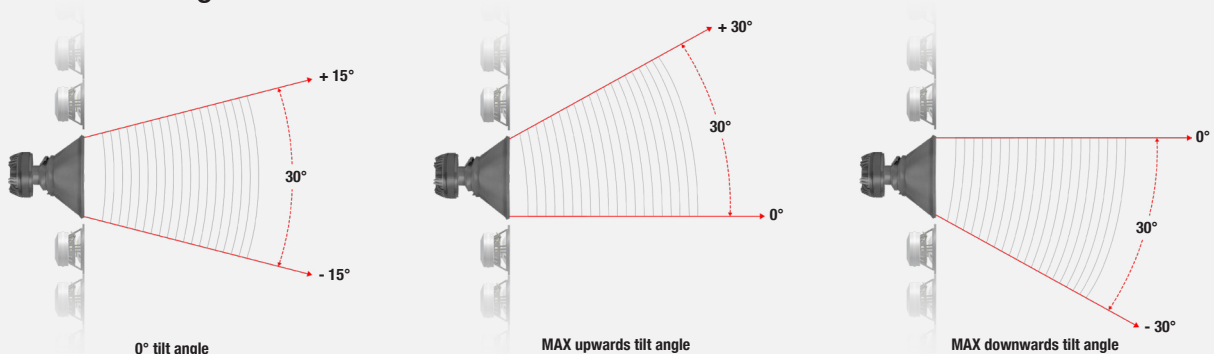
Principle of the variable VALTEC™ Waveformer



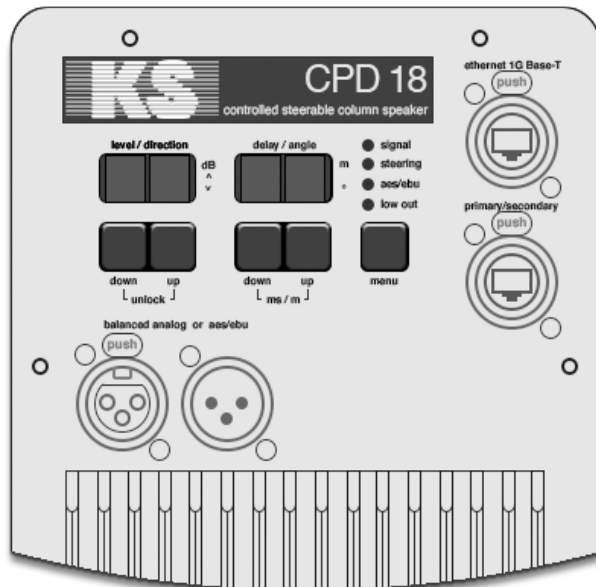
Variable vertical dispersion angle (spread)

Clearly visible are the two motors that rotate the two pairs of lenses. The motors are controlled via the electronics contained in the integrated amplifier DSP module. The entire system is operated using the menu on the back of the CPD 18.

Variable tilt angle



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The power module consists of a switched-mode power supply with Power-Factor-Correction, six Class D amplifiers for low and midrange drivers and a high-end Mosfet amplifier for the high frequency driver. The 7 channel DSP is fully digital and equipped with FIR filters that are precisely tuned and measured on the 13 components of the CPD 18. The filter controls crossover, EQ, limiter and time alignment. The CPD 18 can easily be adjusted to the room via the digital operating menu on the back or remotely via KS own remote software.

With the presence of a low-cut switch, the CPD 18 can be switched as a pure speech system or as a full-range system in combination with a subwoofer. The analog electronically balanced input is designed as an XLR F + M socket. When connecting a digital audio signal according to AES / EBU or DANTE standard, there is an automatic switch to fully digital operation with SRC up to 192kHz.

SPECIFICATIONS

Frequency response	38 - 20.000Hz \pm 3dB
LOW CUT modes	70 / 120Hz
Max. SPL - 1m. free field	134dB
Nominal horizontal dispersion	120°
Vertical dispersion	Variable 0° - 30° Beam tilt between -15° and +15°
Transducers	LF: four 10" ND cone MF: eight 5.5" ND cone HF: one 3.5" mylar ring diaphragm 1.75" throat compression driver
Acoustic Principle	LF: bass-reflex MF: line principle HF: VALTEC™ Variable Acoustic Lens Technology
Power handling AES RMS / peak	LF: 1000W / 2000W MF: 500W / 1000W HF: 100W / 200W

INTEGRATED ELECTRONICS

Amplifier type	2x PWM Low, 4x PWM Mid and 1x MOSFET Mid-high
Power supply	SMPS (Switched Mode Power Supply) with power factor correction (PFC)
DSP	7-channel, 32-bit, floating point, 192kHz sampling frequency
Filter technology	IIR and FIR filters, delay adjustments, contour filter
Power input - output	powerCON in / out 110-240V 50-60Hz
Signal input - output	XLR3-F and XLR3-M Analog/AES-EBU autoswitch RJ45 Ethercon 1G T Base for Dante™ and KS AUDIO REMOTE Control

DIMENSIONS AND WEIGHTS

