

O 500 C

Digital Active
Main Monitor



In the O 500 C studio monitor, Klein + Hummel have developed a comprehensive and innovative approach to the design of large studio monitors. This approach integrates the latest DSP technology and sets new standards for authentic, uncolored, and accurate audio reproduction. The O 500 C is one of a new class of large reference monitors employing an integrated digital controller. Digital signal processing combined with FIR (Finite Impulse Response) filters make it possible to independently control the frequency response's magnitude and phase. Other features include the use of the resonance-free material (LRIM), innovative driver designs with optimal reproduction quality, high-performance power amplifiers with a wide dynamic range and a modern enclosure concept.

- Active 3-way main monitor
- Fully digital crossovers and system correction using integrated controller with FIR filters
- Linear frequency and phase response from 30 Hz to 20 kHz gives a transparent and analytical reproduction
- Modeled waveguide gives precise directivity control in the mid and high frequencies
- Increased maximum SPL due to generous amplification (low: 400 W; mid: 230 W; high: 290 W)
- Magnetic protection fitted as standard
- Smaller Klein + Hummel monitors aspire to the same sound character



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Up-to-date driver designs

Uncompromising woofer

- 12" cone woofer with cast aluminum basket
- Patented construction with rear-ventilated voice coil leading to
 - ▶ Greatly increased load capacity and minimized power compression
- Double insulated membrane offering
 - ▶ Minimal distortion, good self-damping and environmental robustness
 - ▶ Long excursion driver with minimal distortion
 - ▶ Optimized outer to inner radius relationship

High resolution mid-range

- ▶ 3" membrane/voice coil diameter
- ▶ Minimal distortion
- ▶ Rear-sealed chassis eliminates cumulative spectral decay irregularities

Precise high-frequency system

- ▶ Low-distortion high-frequency reproduction from stiff 1" titanium fabric dome

Solid cabinet design

- Low-compression bass reproduction from high capacity bass reflex ports
- Smooth matte enameled baffle design minimizes edge diffraction
- Flexible mounting and setup possibilities
- Available in different colors

Optimized directivity control

- Broad horizontal dispersion widens the usable listening area
- Narrow vertical dispersion reduces the effects of the console reflection
- Rotatable waveguide for vertical and horizontal installation
- Digital compensation of time alignment and amplitude response
- High order digital crossovers reduce driver interaction

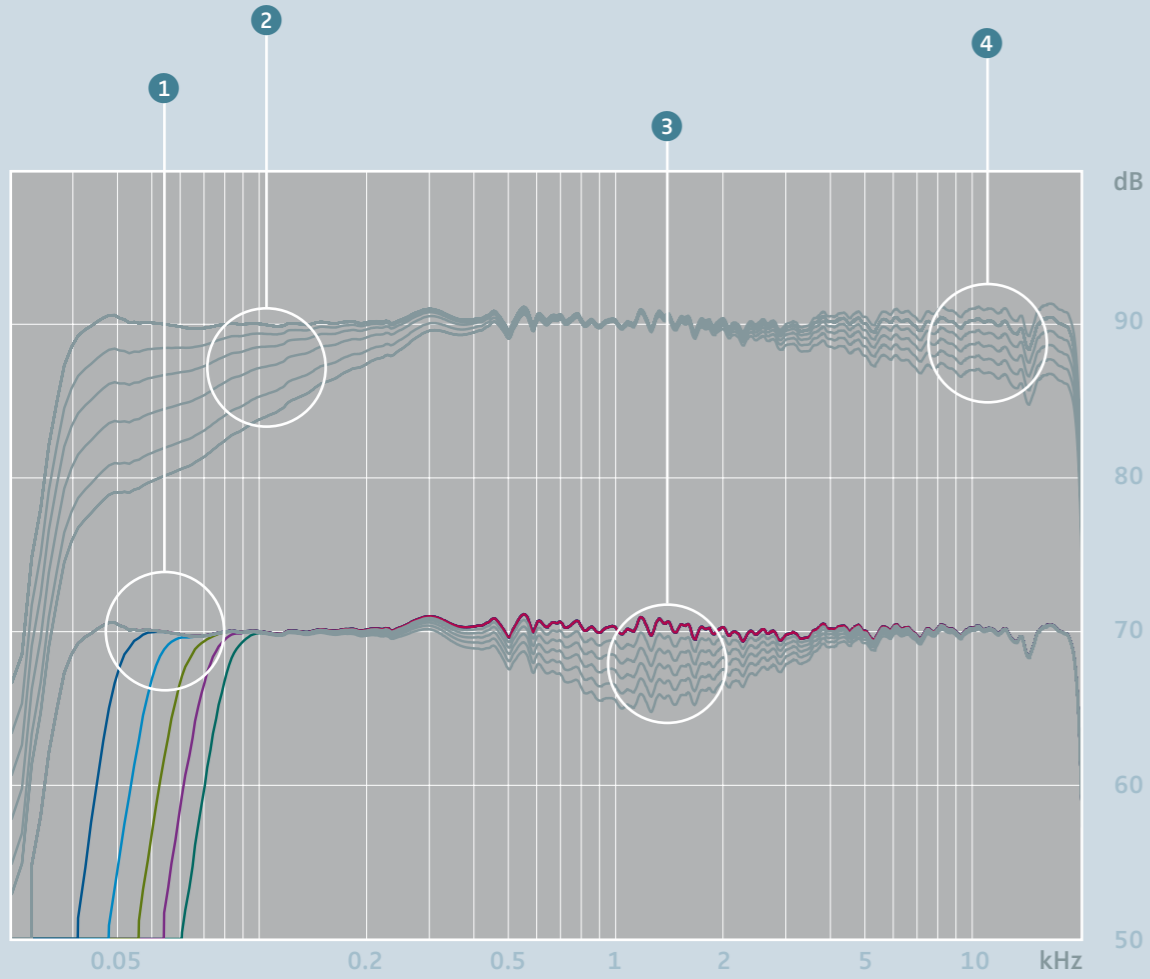
Advanced integrated digital controller

- AD crossover-technology with 130 dB dynamic range
- Extremely low distortion due to the latest 24 bit converter technology
- AES / EBU and S / P-DIF digital input
- System correction and phase frequency equalization by individually tuned FIR filters
- Numerous correction modes available (linear phase, minimal phase, FIR, and IIR)
- Pre-emptive protection limiters:
 - ▶ Peak limiter to avoid transient damage of amplifiers and drivers
 - ▶ Regulated power amplifier overloading
 - ▶ Thermo-limiter to protect the power output of the drivers
- Large and attractive blue vacuum fluorescent display (VFD) shows all settings
- Infrared remote control for convenient control from the listening position
- Loudspeakers can be connected together to form a network and be controlled by one remote

New patented output concept

- Intelligent power supply for minimal power loss
- Very high performance outputs: 400 W for bass, 230 W for midrange, and 290 W for treble
- Extremely high dynamics: 129 dB(lin) / 132 dB(A)
- Very low nonlinear distortion (THD+N): bass: <110 dB (0.0003 %), midrange: <100 dB (0.001 %), and treble <90 dB (0.003 %)

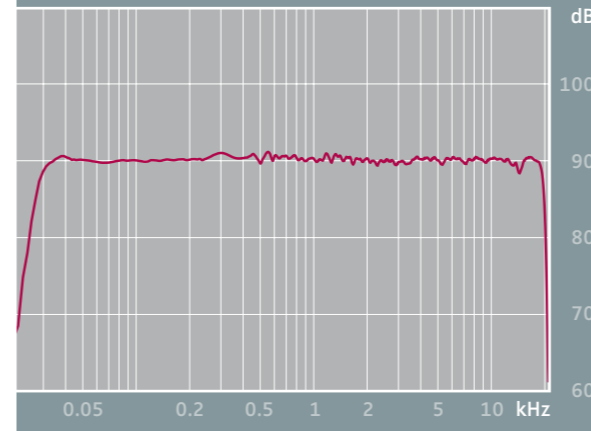
Easy and flexible adaptation with extensive equalization. In each O 500 C, an FIR filter allows for precise and independent control of the amplitude and phase responses during design. The digital controller also features a fully parametric 10-band IIR digital filter bank. This offers flexible, real-time control for further adaptation of the frequency response. Finally, simple, wideband, discrete controls allow for fast, yet effective, integration of the monitors to their environment.



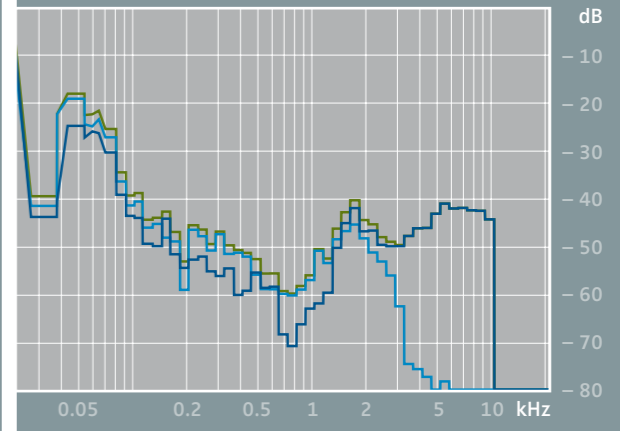
- 1 Low Cut for adjustment of the lower cut-off frequency
- 2 Low EQ for compensation of wall-, edge- and corner-positioning
- 3 Mid EQ for broadband response shaping
- 4 High EQ for compensation of different reverberation times

Individual room adaptation with extensive and flexible filters. The O 500 C is designed to adapt to the requirements of almost any critical listening space. This is possible using integral FIR-based controller technology. The frequency and phase of the FIR filters can be adjusted independently during the design phase to give an optimal response from the loudspeaker. Measurements across the listening area take into account the interplay of the acoustic space, monitor, and its location. The parametric filter is then tuned to match the desired target response, resulting in a significant sound quality improvement. This acoustic optimization demands a certain level of experience and equipment, however it results in an effective means of addressing acoustic imbalances.

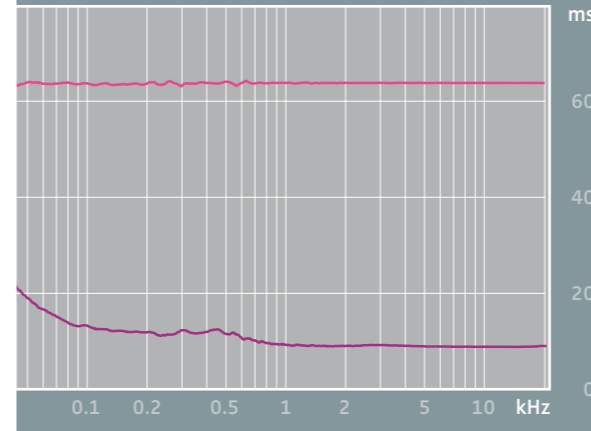
Frequency response



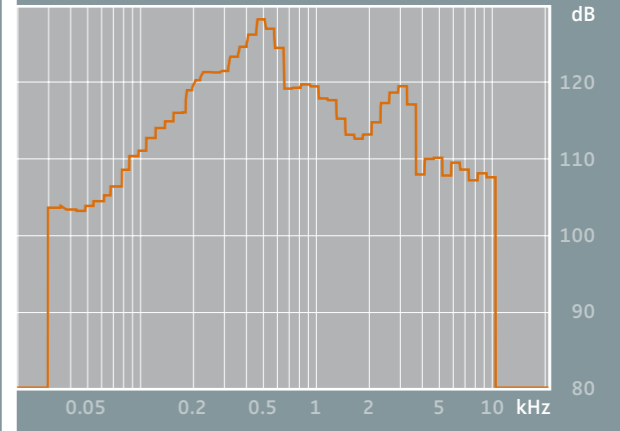
THD at 106 dB SPL at 1 m



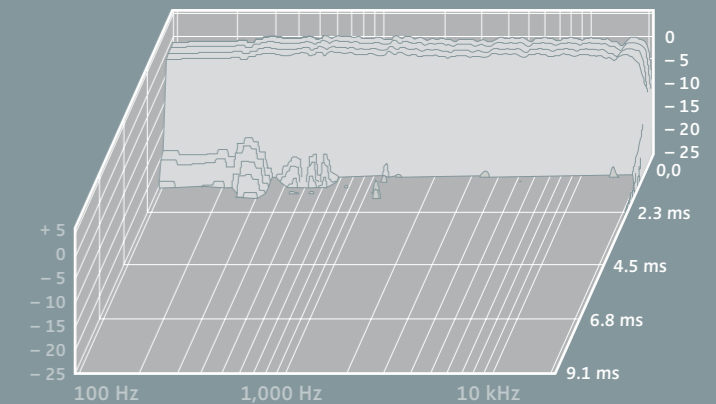
Group delay



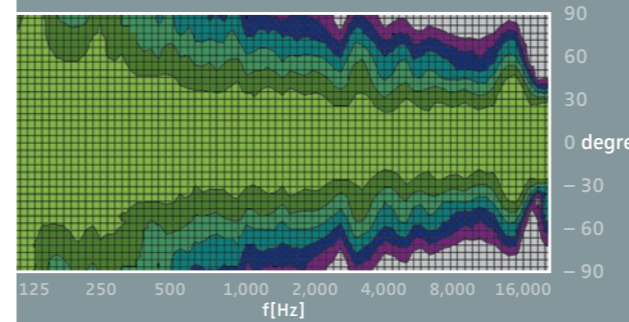
Max. SPL in 1 m at 1% THD



Cumulative spectral decay



Horizontal directivity



Vertical directivity

