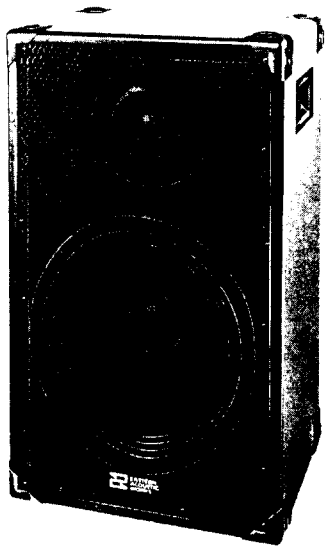
Forsythe Series FR122

Wide Coverage Compact Full Range System



Design Leadership

The FR122 is the direct descendant of EAW's FR100, the industry's original compact system with a dome driver. While the rest of the industry has been busy playing catch-up, EAW again leads the way with our third generation design. The FR122 incorporates the latest design developments, including time compensation, magnetic damping fluid and bi-frequency vent design. These advanced features enable the FR122 to offer performance simply unequaled by any other system near its size. Listening to the FR122, you will be aware that each and every aspect of the FR122 reflects EAW's advanced engineering capabilities and dedication to accuracy. This master craftmanship is inherent in EAW's philosophy and is what makes our products unique in comparison to the mass produced products offered as competition.

Coherent Time Design

The FR122 utilizes a time offset baffle designed to ensure proper driver time alignment at crossover for maximal smooth crossover response.

Compact Durable Package

The FR122's small (1.6 cubic foot) size enables two units to fit in the back seat of most commuter cars. The small size also makes installation quick and easy.

Unique RCF Hard Dome High Frequency Driver

RCF's TW116 hard dome high frequency driver is the key to the FR122's exceptionally natural sound character. This 52 mm (2 in) dome design is similar to the drivers found in the finest hi-fi systems, but its massive magnetic structure produces output levels required for professional use. The result is 6 to 10 dB higher efficiency and 3 to 6 dB more power handling than home hi-fi systems, but the TW116 retains the smooth response, low distortion and wide coverage of the dome design. No other pro system with a horn tweeter can match the FR122's natural open sound and excellent imaging.

Space Age Magnetic Damping Fluid

To further enhance the performance of the TW116, the FR122 makes use of "space age" magnetic damping fluid in the voice coil gap. Conventional drivers have air in the voice coil gap which acts to thermally insulate the voice coil from the magnetic assembly. By filling the gap with magnetic fluid, heat build up in the voice coil is drawn into the magnet assembly, where it can be easily dissipated over the large surface area of the entire driver. The result is a 3 to 6 dB increase in long term power handling, virtually eliminating thermal failures.

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Low Frequency Section

The 300 mm (12 in) high pressure die cast bass driver is loaded into a 45 liter vented box incorporating EAW's exclusive bi-frequency tuning system. This technique makes use of two vents tuned to different frequencies, lowering the low frequency limit of the system. This is accomplished without response ripples normally associated with super low tunings. The result is strong response down to 50 Hz, without external equalization. The bi-frequency tuning system also reduces driver excursion at low frequencies and distortion, resulting in greater bass definition and more realism in the sound.

Crossover Design & Construction

The crossover network is the heart of any system and the FR122's crossover is the most sophisticated available in any compact pro system. Crossover development at EAW is a long and painstaking process. Parameters are mathematically calculated and continuously adjusted during extensive listening and precision acoustic measurement evaluations. The final design is then built into a run of systems, each one tested for variations. The design is then modified to compensate for these variations. At each step in this process, the filters are optimized to provide maximal electrical damping and minimum phase response while providing a smooth transition between drivers. The resulting crossover is a third order design with non-symmetrical slopes for crossover equalization.

To guarantee that production crossovers achieve their design specifications, we individually test each crossover component and the final product to be within 3% of the original design values. This intensive effort results in the elimination of crossover induced distortion, typically the highest source of distortion in compact systems.

Architect's and Engineer's Specifications

The loudspeaker system shall be of the two-way type, incorporating one 12-inch low frequency loudspeaker in a vented direct radiator enclosure and a 2-inch hard dome high frequency driver. The system shall meet the following performance criteria: Frequency range:50 to 22k Hz; Pressure sensitivity: 99 dB SPL; Power Handling: 300 watts in accordance with AES standard specification; Horizontal coverage: 130 degrees between -6 dB points. The high frequency driver shall have fero-fluid in the voice coil gap. The crossover shall be a third order design incorporating asymmetrical slopes providing driver equalization.

Architect's & Engineer's Specifications Cont.

The cabinet shall be constructed of void-free cross-grain-laminated birch plywood and coated with catalyzed polyurethane finish. All the drivers shall be protected with a perforated steel grill coated in vinyl.

The loudspeaker system shall be the Eastern Acoustic Works Forsythe Series model FR122.

Specifications

MODEL:	FR122
Frequency Response	
+- 3 dB:	50 to 20,000 Hz
- 10 dB:	40 to 22,000 Hz
Axial Sensitivity:	99 dB SPL
Half Space Efficiency:	2.3 %
Power Handling	
Sine Wave:	150 watts
AES Standard:	300 watts
Nominal Impedance:	8 ohms
Coverage Angles	
Horizontal:	150 degrees
Vertical:	100 degrees
Maximum SPL:	121 dB SPL
Maximum Acoustic Output:	9 acoustic watts
Transducer Complement	
Low Frequency:	RCF PRO L12/565 300mm Cone
High Frequency:	RCF TW116 52mm Hard Dome
Crossover Data:	
Type:	Third Order Equalized
Slope:	18 dB per octave
Frequency:	2800 Hz
Enclosure Type:	Vented
Enclosure Volume:	45 liters (1.6 ft3)
Construction:	Cross-Grain- Laminated Birch
Finish:	Catalyzed Polyurethane
Dimensions:	24" H x 15"W x 12.5" D
Weight:	24 Kg (53 lbs)

Eastern Acoustic Works