

# Forsythe Series FR102

**Ultra Compact  
Nearfield Full  
Range System**



## **Ultra Compact Size**

Occupying less than one cubic foot of volume, the FRI02 is the ideal problem solver for tight fitting applications such as under balcony fill, foreground music, satellite W/HF and highly portable AV presentations.

## **Exceptionally Wide Horizontal Coverage**

The FRI02 maintains a horizontal coverage of 110 degrees above 16,000 Hz so even the highest musical overtones can be heard by every listener. This wide open sound contributes to the FRI02's natural "hi-fi" sound character.

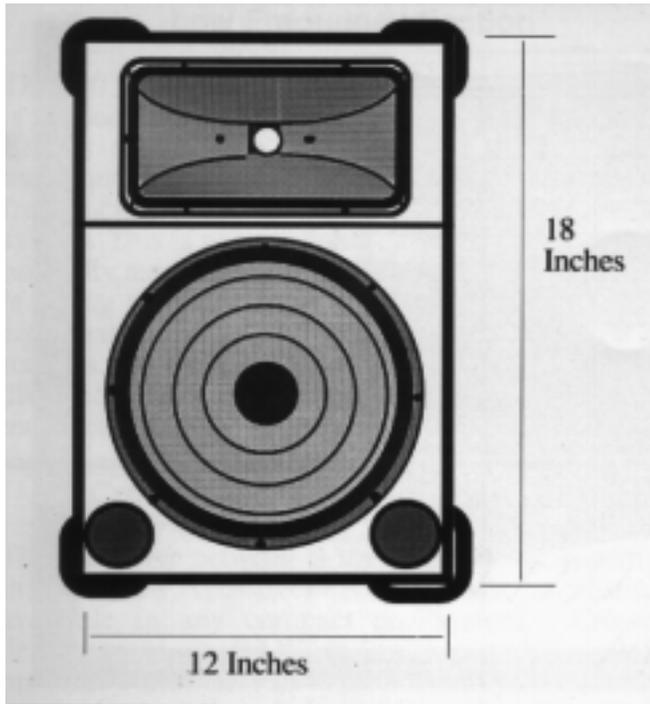
## **High Output Capabilities**

The combination of the FRI02's 98 dB SPL sensitivity and 250 watts of AES standard power handling results in 121 dB SPL maximum output at one meter. This enables the FRI 02 to offer the equivalent output of 4 to 8 typical hi-fi or compact studio monitor loudspeaker systems.

## **Ultra Durability**

The FR102, despite its size, is built to the same standards of construction as EAW's concert sound reproducers and, as such, provides a level of durability and reliability virtually unmatched in the pro sound industry. All exterior surfaces are constructed of imported multi-ply cross-grain-laminated birch hardwood. Standard features include perforated steel grills, recessed hand holds and catalyzed polyurethane coating finish.

**Eastern Acoustic Works**



# Forsythe Series FR102

## Specifications

<b>MODEL:</b>	<b>FRI02</b>
Frequency Response	
+ 3 dB:	80 to 16,000 Hz
- 10 dB:	55 to 19,000 Hz
Axial Sensitivity:	98 dB SPL
Half Space Efficiency:	2.3%
Power Handling	
Sine Wave:	100 watts
AES Standard:	250 watts
Nominal Impedance:	8 ohms
Coverage Angles	
Horizontal:	130 degrees
Vertical:	50 degrees
Maximum SPL:	121 dB SPL
Maximum Acoustic Output:	5.75 acoustic watts
Transducer Complement	
Low Frequency:	RCF PRO L 10/560 250mm
High Frequency:	RCF N252F Horn/Driver
Crossover Data:	
Type:	Third Order Equalized
Slope:	18 dB per octave
Frequency:	3,500 Hz
Enclosure Type:	Vented
Enclosure Volume:	29 liters (1.0 ft <sup>3</sup> )
Construction:	Cross-Grain - Laminated Birch
Finish:	Catalyzed Polyurethane
Dimensions:	18" H x 12"W x 8" D
Weight:	17.3 Kg (38 lbs)

### Architect's and Engineer's Specifications

**Model FRI 02**

The loudspeaker system shall be of the two-way type, incorporating one 10-inch low frequency loudspeaker in a vented direct radiator enclosure and a combination compression driver horn high frequency tweeter. The system shall meet the following performance criteria: Frequency range: 55 to 19k Hz; Pressure sensitivity: 98 dB SPL; Power handling 250 watts in accordance with AES standard specification; Horizontal coverage: 130 degrees between -6 dB points. The high frequency driver shall have ferro-fluid in the voice coil gap. The crossover shall be a third order design incorporating asymmetrical slopes providing driver equalization.

The cabinet shall be constructed of void-free crossgrain-laminated birch plywood and coated with catalyzed polyurethane finish. The low frequency driver shall be protected with a perforated steel grill coated in vinyl. The loudspeaker system shall be the Eastern Acoustic Works Forsythe Series model FR102.

# 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 FRI 22 incorporates the latest design developments, including time compensation, magnetic damping fluid and bi-frequency vent design. These advanced features enable the FRI 22 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 craftsmanship 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 FRI 22 utilizes a -time offset baffle designed to ensure proper driver time alignment at crossover for maximal smooth crossover response.

## **Compact Durable Package**

The FR I22'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 TW 116 hard dome high frequency driver is the key to the FRI 22'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 TWI 16 retains the smooth response, low distortion and wide coverage of the dome design. No other pro system with a horn tweeter can match the FRI 22's natural open sound and excellent imaging.

## **Space Age Magnetic Damping Fluid**

To further enhance the performance of the TW 116, the FRI 22 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.

### **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 nonsymmetrical 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 22kHz; 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 ferro-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 crossgrain-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 FRI 22.

### **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 TW 116 52mm Hard Dome
CrossoverData:	
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)

# Forsythe Series FR153

**Wide Bandwidth  
Nearfield Full  
Range System**



## **Exceptionally Wide Bandwidth**

The FR153's usable frequency range of 30 Hz to 22,000 Hz enables it to accurately reproduce the full musical spectrum from deep fundamentals to the most delicate overtones. This enables your audio presentation to take full advantage of modern electronically synthesized music with hi-fi realism.

## **Unmatched Wide Horizontal Coverage**

Horizontal coverage of the FR 153 is greater than 130 degrees up to 10,000 Hz and 100 degrees coverage is maintained above 16,000 Hz. No other high output system can match this ability to provide excellent sound over as broad a listening area. The natural wide open sound is the result of RCF's unique TW1 16 hard dome high frequency driver.

## **State Of The Art Drivers**

Using the latest developments in driver design permits the FRI 53 to reach new levels of sonic definition for a high output system. The RCF TW 116 hard dome driver is a truly unique device incorporating advanced magnetic circuit

design and space age magnetic fluid for voice coil cooling and damping. EAW's advanced MF170A 7-inch mid range driver utilizes a poly-laminated cone to reduce distortion, while its small piston size has been optimized for flat power response. The RCF PRO L 15/542 bass driver was computer optimized for ideal vented box performance, enabling lower distortion over its pass band.

## **Advanced Crossover Network**

Kenton Forsythe's advanced crossover is the key to the FR153's seamless frequency response. The complex third order network utilizes asymmetrical electrical slopes to provide equalization at the crossover points resulting in maximal flat acoustic performance with effective 24 dB per octave acoustic slopes. The crossover also features electronic damping for the system, high frequency level control and driver protection fuses. Crossover construction sets the standards for quality in the audio industry: all components and assemblies are 100% tested. The crossover itself will handle 400 watts thermally for 24 hours and pass 1500 watts for 10 minutes without distortion.