

The Forsythe Series: JF-500

Industrial "One Box" Loudspeaker Systems



For Applications That Require The Best!

The EAW JF-500 is designed to duplicate the smooth response, low distortion, and wide dynamic capabilities of EAW's famous horn loaded component systems, in a compact, portable, flexible "one box" package. It is intended for use in high level sound reinforcement, high level playback, motion picture sound, and performing arts applications. It will provide clean sound from 50 Hz to 18,000 Hz with good directivity and output.



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Description

This system consists of three horn/driver subsystems. They are totally integrated into a single package for coherent, full bandwidth reproduction and simplicity of transport and set-up.

The use of true horns over the entire bandwidth provides lower harmonic and modulation distortion, higher efficiency, and better control of directivity and coverage angle, than any direct radiating system. This results in a continuous output of over 127 dB SPL at 1 meter with the directivity needed for good articulation in medium to long throw "semi-reverberant" environments. The JF-500 also offers considerably smoother frequency response than comparable horn systems (± 2.5 dB 80 to 14k Hz), for a naturalness in reproduction previously associated only with near-field hifi systems.

The system will operate in either bi-amplified or tri-amplified mode, selected by a rear panel switch and has an internal passive crossover between the MF and HF sections, for maximum versatility in powering configurations. The enclosure is road-ready, offering the unsurpassed durability that is characteristic of all EAW sound reinforcement systems. Packaging features include 18 ply hardwood surfaces, recessed handles, steel driver protection, catalyzed polyurethane chemical finish, and optional aircraft-type hardware for hanging.

Low Frequency

The Forsythe designed bent bass horn provides precise loading for the 380mm (15 in) RCF LAB L15/554 bass driver. This design allows a very low flare rate and long horn length in a compact box without the discontinuities of impedance loading characteristics in a folded horn. The small mouth area of a single JF-500 creates a shelving in response (-3 dB at 60 Hz and -10 dB at 50 Hz). When multiple JF-500's are used in array, the low flare rate provides a smooth response down 3 dB at 48 Hz and -10 dB at 42 Hz. The sensitivity and directivity of this bass horn is significantly better than any vented system using multiple 15 or 18 inch drivers.

Mid Frequency Section

The constant horizontal coverage horn with integral displacement plug provides increased directivity and efficiency to the specially developed RCF PRO L10/539 250mm (10 in) mid-bass driver. This combination does not suffer from the poor off-axis response of simple horn and direct radiating mid-bass systems. The large diaphragm and throat area of this reproducer provide considerably lower distortion than even the largest compression drivers. The smooth response on and off axis combined with low distortion removes the characteristic "honk" of high output systems.

High Frequency Section

The high frequencies of the JF-500 are provided by the RCF H-3709 and RCF N-480 offering smooth response and even coverage up to 18,000 Hz. The N-480's composite diaphragm offers durability unequalled by any metal diaphragm and is readily field replaceable in the unlikely event of a failure. The internal passive network provides the additional protection of an 18 dB per octave slope in the bi-amplified mode and 6 dB per octave additional protection to the external crossover in the tri-amplified mode.

Power Handling

EAW uses the most conservative method of rating power handling in the loudspeaker industry - 100 hours sine wave swept over the operating range of the system. This test is considerably more demanding than the EIA noise test. The AES Standard spec is an indication of the long term program power handling capabilities of the driver or system. A system can be used safely with an amplifier capable of producing the program rating with low distortion, provided that it is not driven into clipping.

SPECIFICATIONS: JF-500

Frequency Response

Single Unit:	-10 dB:	50 Hz to 18,000 Hz
	± 2.5 dB:	80 Hz to 14,000 Hz
Quad Array:	-10 dB:	42 Hz to 18,000 Hz
	± 3 dB:	48 Hz to 15,000 Hz

Sensitivity

System:	106 dB SPL 1w 1m
LF Unit:	106 dB SPL 1w 1m
MF Unit:	108 dB SPL 1w 1m
HF Unit:	105 dB SPL 1w 1m

Maximum Acoustic Output (Half Space)

Single Unit:	60 acoustic watts
Quad Array:	240 acoustic watts

Power Handling Capacity

Bi-amplified Mode	Sine Wave	IEA	AES standard
50 to 300 Hz:	200w rms	400w	500w
300 to 18k Hz:	100w rms	200w	250w
Tri-amplified Mode			
50 to 300 Hz:	200w rms	400w	500w
300 to 1.4k Hz:	100w rms	200w	250w
1.4 to 18k Hz:	60w rms	100w	180w

Nominal Beamwidth

Horizontal:	100 degrees
Vertical:	50 degrees
Nominal Directivity Factor:	$Q = 14$

Driver Components

	Model	Diameter	Voice Coil Diameter
LF:	LAB L15/554 (LF384)	380mm (15 in)	100mm (4 in)
MF:	PRO L10/539	250mm (10 in)	45mm (1.75 in)
HF:	N-480	45mm (1.75 in)	45mm (1.75 in)

Crossover Frequencies

High Pass:	40 Hz 18 dB per octave (optional)
LF/MF:	400 Hz 18 dB per octave (300 - 500 permissible)
MF/HF:	1,800 Hz 18 dB per octave (1.5k - 2k permissible)

Nominal Impedance

LF:	8 ohms
MF:	8 ohms
HF:	12 ohms

Dimensions

Height	Width	Depth	Weight
50 $\frac{3}{16}$ in (1275 mm)	24 $\frac{5}{8}$ in (625 mm)	29 $\frac{3}{4}$ in (756 mm)	232 lbs (net) 241 lbs (shipping)

Enclosure Material:

Cross Grain Laminated Birch Hardwood

Enclosure Finish:

Catalyzed Polyurethane Chemical Coating