

System Design

Many of the problems associated with loudspeaker system design stem from the need to overcome the intrinsic limitations of conventional drivers.

Given, however, a range of drivers each of which alone can provide a very acceptable sound quality within its power range limits, system design can be incredibly simple, with very few, if any, crossover components and non critical enclosure design. While this is of tremendous value to the D.I.Y. enthusiast who wants to get to his music with as little hassle as possible, the options are wide open for the knowledgeable speaker builder to explore every conceivable crossover type and box alignment where the accuracy of computer modelling is greatly improved by the stability of the JORDAN suspension.

Whilst we accept the value of computer modelling we do so with caution, preferring to actually build systems and assess them aurally against our live sound experience. We feel that modelling alone can produce the sonic equivalent of 'painting by numbers'.

We naturally accept that some aspects of the JORDAN approach may not always be in accordance with conventional thinking.

Application Notes

All of the systems described have been built and judged for their ability to recreate the living presence of naturally produced music and may be used as aural benchmarks against which the sound quality of more esoteric designs may be judged.

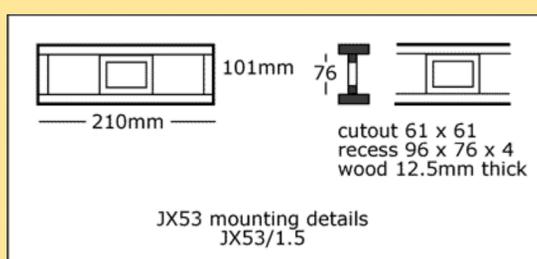
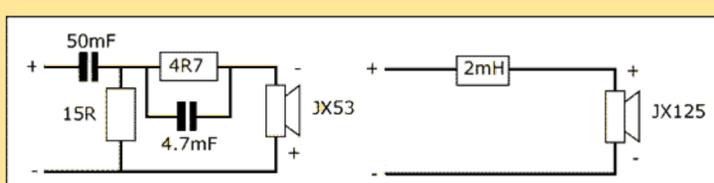
The designs show the basic requirements only. Box proportions and shape may be varied provided the enclosed volume is maintained.

Medium Density Fibreboard (M.D.F.) of the shown thickness is a minimum requirement. Other materials may be use with propriety damping panels if necessary to avoid panel resonances but the box should be resized to maintain the chosen volume.

JX53 SYSTEMS

For traditional applications a single JORDAN JX53 offers an exceptional mid/high frequency drive unit. Several box options are available. 1) The unit is mounted in a 'closed box' type: JE53/1.5 which may be free standing or integrated into a bass system with the appropriate increase in bass box volume, or, a wall mounted option may be chosen where the JX53 is fitted to the [Linear Array enclosure](#) with the space for the other three units closed off. This offers the opportunity to upgrade to a full Linear Array at a later stage. Alternatively, the internal height of this may be reduced to 76mm to accommodate one unit only.

A simple, first order crossover design is shown for one JX53 used in conjunction with a JE125/25 bass system. Note phase on JX53.



JX62 SYSTEM

The JORDAN JX62 has been developed for multimedia use. Designed with the same criteria as all our other drive units it produces a very balanced high definition sound. It is a high efficiency low power driver and therefore not really suitable for inclusion into a hi-fi system. It is fitted with a reverse magnet to minimise leakage fields.

JX92 SYSTEMS

The JORDAN JX92, originally developed for 'near field' monitor applications, provides the basis for a superb 'entry level' system for the smaller room with an outstanding level of 'cross-over free' sound quality.

A feature of the JX92 is its 'designer' tailored polar response. The axial response above 2kHz exhibits a linear rise. The response at 30 degrees off axis shows a complementary fall. The power response is, therefore, substantially level which, if the loudspeakers are positioned so that the axes cross well in front of the listening area, achieves remarkable stereo image stability.

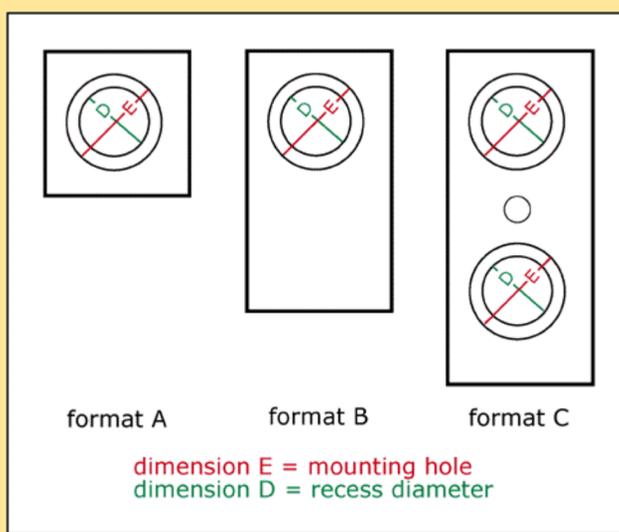
For many applications the traditional box shape (JE92/6) is acceptable but with the suggested 'toe-in' this may lack aesthetic appeal. An alternative design is offered, ([JE92/6WM](#)). This may be used free standing but wall mounting is to be very much preferred. With a maximum of spacing of approximately 8ft, this arrangement will exhibit many of the performance qualities of the linear array.

If required, the low frequency performance can be augmented by the use of the JE125/25 bass system using a 5mH series inductor. The JX92 system should continue to handle the full range avoiding bass roll off circuitry.

BASS SYSTEMS

All closed boxes should be well filled with an appropriate fibre material to avoid internal reflections. NOTE: This will tend to slightly lower the system resonance and Qs.

Vented designs should be lined with fibre material to a depth of 30-40 cms. Vents must be unlined and bevelled, or flared at each end.



JE System	drive unit	net vol litres	vent l x dia	format	internal h x w x d	mounting hole D E
53/1.5	JX53	1.5	none		see drawing	
62/1	JX62	1	none	A	12 x 12 x 8	10.6 - 8.3
92/6	JX92	6	none	A	30 x 13 x 16	14.1 - 13.0
125/25	JX125	25	none	B	55x18x29	17.1 - 14.6
150/40	JX150	40	none	B	60x25x28	21.7 - 18.8
2/125/66	2x JX125 12 ohms	66	31 x 10	C	80x21x42	17.1 - 14.6
2/150/100	2x JX150 12 ohms	100	33 x 22	C	100x31x45	21.7 - 18.8

Jordan Linear Array

This definitive statement of JORDAN technology is, as would be expected, deceptively simple in concept.

The system is based upon a vertical linear array of four JORDAN JX53 drive units for each channel. Their rectangular chassis format permits close stacking. The units are driven with equal power and full bandwidth. Simple R/C equalisation compensates for the air load characteristics of the Array. Bass 'roll-off' components are unnecessary.

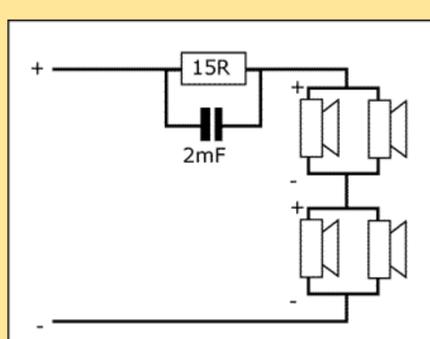
For optimum performance, the arrays should be wall mounted in front of the listening area. They may be up to 15 feet apart and the wall space between them should be unobstructed and preferably lined with a soft covering.

This configuration generates near cylindrical wave formations which project along the wall and develop a continuous full width soundstage between the arrays with remarkable image stability regardless of listening position within the room.

This, together with the intrinsic ability of the system to preserve low level detail will, programme permitting, sonically 'open up the wall' to reveal an unprecedented spatiality and depth of live stage realism.

The JORDAN Arrays should be used in conjunction with Bass Systems: JE 2.125/66R, JE150/80 or JE 2.150/100R. Bass low pass roll-off should be achieved with a series 9mH inductor. System power rating is determined by the bass system.

A separate page gives [construction details](#) for the linear array enclosure.



Technical background to the Linear Array

Conventional loudspeakers radiate sound randomly in all directions where the perceived loudness is proportional to the inverse square of the distance between the loudspeaker and the listener. This means that if the listener moves a little to the left or right from a central 'hot seat' position, images cluster toward the nearest loudspeaker. A cylindrical wave front has an inverse linear loudness/distance relationship which maintains a far greater image stability.

The spatiality and 'depth' of the soundstage is a result of the low level detail intrinsic to JORDAN foil cone technology, and the absence of the masking influences of wall reflections and crossover circuitry.



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