



Reference Series
Model One, Two, Three, Four

REFERENCE SERIES MODELS ONE, TWO, THREE, FOUR

1994 saw the introduction of a brand new Reference Series: Models One, Two, Three and Four – a structured range of products with the traditional KEF values of high acoustic performance, technical innovation and stylish looks.

All models featured the latest Reference Series Uni-Q array - a 165mm polypropylene cone midrange unit coupled with a coincident-mounted 25mm fabric dome tweeter, a progressive development of that used in the highly regarded Reference Model 105/3. Along with the established advantages of the symmetrical vertical and horizontal response and continuity of dispersion through the crossover region, this new version featured a low profile surround for a smoother high frequency response.

For bass reproduction the established coupled cavity system was developed into the 'interport' configuration – further improving its dynamic capability. To minimise cabinet colouration, mechanical decoupling was again used for the lower and upper midrange drivers. The veneered cabinets featured rounded edges, a new innovation not seen before in loudspeakers, made possible by the latest manufacturing techniques.

Reference Series Model One (1994-99)

Model One was a three-way floor standing system with a single unit coupled cavity bass section. It offered refined musical reproduction in a compact enclosure. It could be used as a main speaker in small to medium sized rooms or as a rear speaker in a multi-channel system with one of the larger models at the front.

Reference Series Model Two (1994-99)

Model Two was a three-way floor standing system with a twin coupled cavity bass section. It offered a significant performance increment over the Model One and was the direct descendent of Model 103/4. It was ideally suited to use as a main speaker in small to medium sized rooms in a stereo or multi-channel system. It was updated in 1997 to include a boundary compensation device – switch-able attenuation of the bass output for use in small rooms or for positioning close to the room boundaries.

Reference Series Model Three (1994-99)

Model Three was a four-way floor standing system with a twin coupled cavity bass section using 8 inch (200mm) bass drivers and was the successor to the highly regarded Model 105/3. It was ideally suited to use as a main speaker in medium to large sized rooms in a stereo or multi-channel system. It was updated in 1997 to include a boundary compensation device – switch-able attenuation of the bass output for use in small rooms or for positioning close to the room boundaries.

Reference Series Model Four (1994-99)

Model Four was a four-way floor standing system with a twin coupled cavity bass section using 10 inch (200mm) bass drivers and was the top model in the range. It was ideally suited to use as a main speaker in medium to large sized rooms in a stereo or multi-channel system. Model Four developed a strong reputation around the world for delivering top quality performance in an elegant enclosure, and at a price which made it remarkable value compared the high end competition.

Specification	Model One	Model Two	Model Three
System type	Three-way, floor standing	Three-way, floor standing	Four-way, floor standing
Enclosure type	Single coupled cavity	Twin coupled cavity	Twin coupled cavity
Size	864 x 230 x 300mm (34 x 9 x 11.8 inches)	1012 x 230 x 300mm (39.8 x 9 x 11.8 inches)	1137 x 275 x 340mm (44.8 x 10.8 x 13.4 inches)
Weight	25.9kg (57 lbs)	29.6kg (65 lb)	35kg (77 lb)
Nominal Impedance	4ohms	4ohms	4ohms
Amplifier requirements	50-150W	50-200W	50-300W
Frequency response	55Hz to 20kHz +/-3dB at 2m on reference axis	43Hz to 20kHz +/-3dB at 2m on reference axis	40Hz to 20kHz +/-3dB at 2m on reference axis
Sensitivity	89dB at 1m/2.83V (anechoic conditions)	90dB at 1m/2.83V (anechoic conditions)	91dB at 1m/2.83V (anechoic conditions)
Maximum output	110dB on programme peaks under typical listening conditions	113dB on programme peaks under typical listening conditions	115dB on programme peaks under typical listening conditions

System	SP3189	SP3188	SP3187
Drive units	BI60 bass unit (SP1312), BI60 midrange unit (SP1345), NT25 tweeter (SP1353)	2 × BI60 bass unit (SP1349), BI60 midrange unit (SP1345), NT25 tweeter (SP1353)	2 × B200 bass unit (SP1343), BI60 lower midrange unit (SP1348), BI60 midrange unit (SP1345), NT25 tweeter (SP1353)
Crossover	SP2223	SP2224	SP2225
System	/	SP3245 (with boundary compensation device)	SP3246 (with boundary compensation device)
Drive units	/	2 × BI60 bass unit (SP1349), BI60 midrange unit (SP1345), NT25 tweeter (SP1353)	2 × B200 bass unit (SP1343), BI60 lower midrange unit (SP1348), BI60 midrange unit (SP1345), NT25 tweeter (SP1353)
Crossover	/	SP2255	SP2256

Specification	Model Four
System type	Four-way, floor standing
Enclosure type	Twin coupled cavity
Size	1266 × 300 × 390mm (47.8 × 11.8 × 15.3 inches)
Weight	49kg (108 lbs)
Nominal Impedance	4ohms
Amplifier requirements	50-400W
Frequency response	35Hz to 20kHz +/-3dB at 2m on reference axis
Sensitivity	92dB at 1m/2.83V (anechoic conditions)
Maximum output	118dB on programme peaks under typical listening conditions
System	SP3186
Drive units	2 × B250 bass unit (SP1356), 2 × BI60 lower midrange unit (SP1357), BI60 midrange unit (SP1345), NT25 tweeter (SP1353)
Crossover	SP2226 and 2244





Model Four For the most discerning listener to whom compromise would be unthinkable, *Model Four* represents the very pinnacle of the KEF Reference range. There are six drive units, a four-way crossover, twin 10" (250mm) bass units, two mid-range drivers and the unique Uni-Q mid-range/treble driver. The true state of the loudspeaker art? Almost certainly.

HAND BUILT BY HUMANS.

Some loudspeaker companies are happy to borrow the production line techniques from the manufacturers of mass market cars. At KEF however, we favour the methods employed by the makers of the world's finest sports cars. Each pair of KEF Reference Loudspeakers is hand assembled by just one highly skilled craftsman. It's their personal responsibility to make sure that every aspect of their work matches 'The Reference'. It's a skill that takes both time and patience. But once you've heard the results we're sure you'll agree it's time well spent.

LESS IS MORE. A SOUND BASIS FOR SPEAKER DESIGN.

Have you ever stood in a railway terminal and struggled to decipher the message from the PA? Or arrived at gate sixty to watch your aircraft taxiing away from gate sixteen? Then you'll already know what happens to sound when it comes at you from more than one source. It loses its clarity and definition.

That's why, in a KEF Reference Loudspeaker, you'll find the Uni-Q® Drive Unit with its high frequency driver tucked neatly away in the centre of the mid-range unit. To do this KEF went to the top and utilised technology from the NASA space programme. The tweeter magnet is made from a rare earth material called Neodymium which is ten times more powerful than the usual ferrite. It's allowed us to make the tweeter small enough to sit in the centre of the mid-range unit. (By the way, don't go looking for this sort of technology in any other loudspeaker, it's protected by a string of patents.)

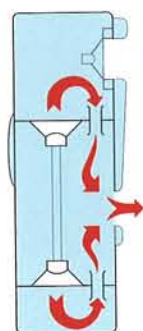
Of course there may be the odd loudspeaker manufacturer who thinks that people will be impressed by the number of drivers scattered across the front of their cabinets. But at KEF we've learned that simplicity, elegance and outstanding performance will always win through.



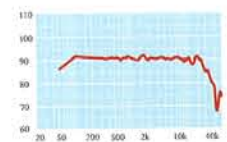
Each KEF Reference Loudspeaker is hand built by a single skilled craftsman.



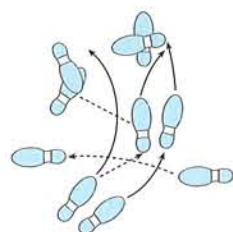
Placing the high frequency driver at the exact acoustic centre of the mid-range unit is the key to superb clarity and definition.



KEF's 'coupled cavity' delivers outstanding bass from a small enclosure.



Every loudspeaker we make has to match 'The Reference'.



No matter how much you move around the room the stereo image remains clear.

BASS DRIVERS. THE INSIDE STORY.

While many lesser loudspeaker manufacturers are happy to mount their bass drivers on the front of the cabinet, at KEF we've placed ours inside. Why? Because the obvious solution is not always the best.

For most designers extended bass means large boxes, but at KEF we've taken our 'coupled cavity' bass loading concept which realises outstanding bass from the smallest of boxes and refined it even further with the addition of interports. Although it's a technology that looks remarkably complicated on paper, with its vast improvement in bass performance it will sound simply remarkable in your home.

WHEN IS A PAIR OF SPEAKERS NOT A PAIR OF SPEAKERS?

There may be two of them. They may look the same. They may even have arrived in the same box, but don't be deceived, they may not necessarily be a pair of loudspeakers. Loudspeakers that aren't perfectly matched will quickly reveal themselves. The stereo image will be vague and the instruments will be difficult to place within the sound stage. A pair of KEF Reference Loudspeakers on the other hand are built and tested to conform to 'The Reference'. Each one must meet our standards to an unbelievable tolerance of just 0.5 decibels.

HOW KEF MADE THE 'SWEET SPOT' LESS OF A SPOT.

With an ordinary pair of loudspeakers you'll find that there's only one place in the room where you'll get good, hi-fidelity performance, and this so called 'sweet spot' is often surprisingly tiny. If, of course, you're in the habit of listening to music with your head firmly clamped in one position, then perhaps an ordinary pair of loudspeakers will suit you fine.

Model Three For effortless musical reproduction and remarkable resolution of detail, *Model Three* uses a four-way, five drive unit configuration. KEF's unparalleled skill in crossover design is clear from the way each driver is seamlessly integrated, leaving even seasoned hi-fi reviewers unable to detect the crossover points. Twin 8" (200mm) bass units handle low frequencies with consummate ease.

Model Three





But if, like most people you tend to sit in different places, and want great sound for more than one person at a time, a pair of KEF Reference Loudspeakers will be music to your ears. The Uni-Q® Drive Unit with its high frequency driver at the acoustic centre of the mid-range cone turns the entire room into a 'sweet spot'.

MUSIC IN MINUTES, NOT HOURS.

It's the Uni-Q Drive Unit that makes KEF Reference Loudspeakers so simple to position. With ordinary loudspeakers their restricted 'sweet spot' means that finding just the right position in your room can literally take hours. Furniture, curtains, walls, ceilings, even the sort of music you're playing can affect how they sound.

KEF Reference Loudspeakers on the other hand, with their ultra smooth off-axis response can be placed, plugged in and played in minutes. After all, it's the music that should be moving you, not the other way around.

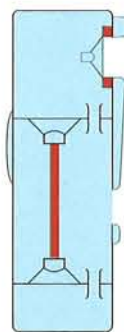
SOUND WHERE YOU NEED IT NOT WHERE YOU DON'T.

It's not just the front of some loudspeakers that give out sound. A badly designed and ill-constructed unit can transmit vibrations through the back and the sides. This unwanted 'cabinet talk' can blur the stereo image and mar the reproduction of fine details.

At KEF we've virtually eliminated this problem in two ways. First, the drivers on the front of the loudspeakers are acoustically decoupled from the cabinet by a soft rubber mounting. And second, the internal bass units are joined back-to-back by a new and vastly improved force-cancelling rod that eliminates much of the vibration that can come from a bass unit and results in the cleanest possible reproduction.



Smooth off-axis response means KEF Reference Loudspeakers can be positioned quickly and easily.



Force-cancelling rods and acoustic decoupling reduce 'cabinet talk' dramatically.

Model Two

Model Two Twin bass drivers and advanced, large diameter force-cancelling rod provide prodigious levels of bass from a surprisingly slim enclosure. The Uni-Q mid and high frequency driver ensures that the sound stage is both wide and deep.





Model One From the full three-way, three driver design with computer matched crossover to the coupled cavity bass loading, Model Ones are the very essence of all that we have striven for with our Reference Loudspeakers. They are perfectly suited to the smaller listening environment.

AN ABILITY FOR COMPATIBILITY.

Please don't think that just because we design and build KEF Reference Loudspeakers to such high standards that they are only suitable for critical applications like recording studios. Features like magnetic shielding and tonal accuracy make them ideally suited to home theatre systems. And unlike some so called 'high end' products, they are quite at home with more affordable electronics. But of course, with loudspeakers of this calibre, the exceptional performance of more esoteric equipment is fully realised.

EVERY PART PERFECT.

Any loudspeaker is only as good as the sum of its parts. That's why, at KEF, we set rigorous standards for each and every component of our Reference Loudspeakers.

Just one example of this attention to detail is the Oxygen-Free Copper (OFC) internal wiring. Different gauges for bass, mid-range and high frequency drivers ensure maximum information transfer from even the most delicate of signals and as you'd expect, we hand solder these cables to further improve sonic integrity. At the rear of the loudspeakers, the internal wiring joins heavy gold plated terminals with a bi-wiring option.

Even the plinths are examples of KEF's commitment to excellence. Mineral filled and formed from rigid polymer, they can be removed and filled with lead shot for additional stability. The elegant feet are turned from solid brass then heavily plated with gold. Reversible and adjustable spikes are fitted to give excellent results on a variety of floor surfaces.



Every part of every Reference Loudspeaker is chosen with the greatest of care.



Each cabinet has adjustable feet turned from solid brass and gold plated.

OUR SPECIFICATIONS.
AN INDUSTRY BENCHMARK.

At KEF we've been making loudspeakers for over thirty years. You'll find them in recording studios and homes where only the very best will do. Now with our latest range of Reference Loudspeakers we think we've built the ultimate.

	<i>Model Four</i>	<i>Model Three</i>	<i>Model Two</i>	<i>Model One</i>
<i>Design</i>	4-way, 6-driver	4-way, 5-driver	3-way, 4-driver	3-way, 3-driver
<i>Crossover frequencies</i>	2.8kHz, 500Hz, 160Hz	3kHz, 400Hz, 140Hz	3kHz, 150Hz	2.8kHz, 140Hz
<i>Frequency range $\pm 3\text{dB}$</i>	35Hz-20kHz	40Hz-20kHz	43Hz-20kHz	55Hz-20kHz
<i>Sensitivity-2.83v @1m</i>	92dB	91dB	90dB	89dB
<i>Maximum output-typical in room</i>	118dB	115dB	113dB	110dB
<i>Amplifier requirements</i>	50-400W	50-300W	50-200W	50-150W
<i>Impedance</i>	4ohms	4ohms	4ohms	4ohms
<i>Weight</i>	49kg (108lbs)	35kg (77lbs)	29.6kg (65lbs)	25.9kg (57lbs)
<i>Dimensions (HxWxD)</i>	1266x300x390mm 47.8x11.8x15.3in.	1137x275x340mm 44.8x10.8x13.4in.	1012x230x300mm 39.8x9x11.8in.	864x230x300mm 34x9x11.8in.
<i>Finishes</i>	rosetta burr/black ash	rosetta burr/black ash	rosetta burr/black ash	rosetta burr/black ash

KEF continues to improve the Reference and therefore reserves the right to amend specifications and features without notice.
Uni-Q is a trade mark of KEF and is protected under UK patent No. 2 236929. World-wide patents pending.

