

# **The Loudspeaker**

**Owners Manual**

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## To the owner

We would like to thank you for investing in a Wilson Benesch Loudspeaker.

Please return your completed Guarantee Registration Card or use the electronic registration within two weeks of purchase.

For electronic registration please refer to the Wilson Benesch web site to take advantage of the Customer Guarantee Registration. You can access the registration area via the 'Owners Section' on the 'Home Page' of:

[www.wilson-benesch.com](http://www.wilson-benesch.com)

The purchase of a Wilson Benesch loudspeaker is merely the beginning of a long term relationship. Every Wilson Benesch loudspeaker is engineered to last a lifetime and all Odyssey Range loudspeakers are guaranteed for five years. The guarantee on this product is non transferable and cannot be transferred to a second owner.

## To the music connoisseur

To the cognoscenti of British high performance audio the Wilson Benesch marque is recognised as one of the world's leading loudspeaker design and manufacturing company's. You now own a product that will deliver years of pleasure to all who come across it within the comfort of your own home.

The care and attention offered by the Wilson Benesch dealer network matches the high quality systems that we manufacture. Should you require any further advice about cables, room sighting, upgrades or any other matters relating to audio or AV systems, then the dealers are more than able to respond to and deal effectively with any of these concerns.

## Unpacking and set up instruction

### Important Points before Setting up

During installation two or more people will be required, as the speakers are quite heavy.

Never attempt to unpack or install the speakers without assistance as this could result in damage to the speaker or personal injury. Please observe normal procedures for lifting and correct posture when handling the speakers. Soft fabric gloves are recommended to prevent damage to the high quality finish. Also, it is strongly recommended that all watches and jewellery be removed prior to unpacking.

Patient and careful setting is essential to obtaining the maximum performance from this system.

- Move the speaker, within its packaging, to the intended listening position. For further information on positioning, see the **Loudspeaker Positioning** section below.
- Making sure the top of the box has been fully opened and the hardware pack has been removed.
- The speaker is now ready to be removed from the box. Have an assistant help you lift the speaker clear of all the packaging. Stand the speaker on the floor, taking care not to damage the foot. The protective polythene bag can be slippery, so great care must be taken at this stage.
- Once both speakers have been stood up, the bags can be removed and the packaging stored for future use, as it is essential for shipping the system safely.

Wilson Benesch is distributed by the world's finest distributors and dealers and should you have any problems they should be able to help you.

You can also contact our customer care service by e-mail at any time.

## The subject of room acoustics

Acoustics is a complex subject and this text should be treated for what it is, a simple but for some, informative guide. For a more in-depth understanding you would need to refer to a whole range of texts on the subject. The most important outcome of this should be the greater appreciation of the role, played by the room on the overall sound of the audio system.

The air contained within the room is the link between the output of the loudspeaker and your ear. How air behaves is dependent upon the attributes or character of the room. It follows that a better understanding of basic acoustics and what facets cause the most influence in the room will assist in making decisions about the way in which the room and subsequently the system can be improved.

Room types fall between two extremes. A room can be **“dead”** on the one hand (full of highly energy absorbent materials and complex diffusing structures) or very **“lively”** on the other (few reflective surfaces and a high proportion of very reflective, hard, non absorbent surfaces). As so often is the case, a balance of materials is commonly preferable to one extreme or the other. The correct balance is the goal for the end user.

### **Room attributes which can be easily changed**

The contents of the room impact greatly upon its overall acoustic character. As you would expect, hard surfaces like glass and concrete tend to reflect a broad band of acoustic energy. Complimentary materials that are soft and thick in section such as heavy natural fibre curtains will tend to absorb a broad band of frequencies.

#### **What are Standing waves?**

Sound waves reflecting between two parallel walls set up resonance modes when **one half, or a whole multiple of one-half, the wavelength of the sound wave is equal to the distance between the walls.**

These resonance modes are referred to as **“standing waves”**. In loudspeakers with parallel walls these waves will cause distortions. The standing waves in your room will distort the frequency response of your system sympathetically boosting certain frequencies.

If a certain standing wave frequency is acoustically isolated from its modal neighbours, its effect is more likely to be audible and problematic. This can compromise the accuracy of any loudspeaker.

## **Middle and High Frequency Room Characteristics**

The middle and high frequencies are affected more by room contents rather than room shape. The surfaces and how they reflect, absorb or diffuse the acoustic energy will tend to describe the “sound” of a room. Like all energy, acoustic energy cannot be destroyed; it can only be converted into something else or reflected. The shape of the surface will determine how it is reflected and the material will determine whether it is absorbed. All rooms have a particular sound, and to appreciate what influences are present in your room you should be aware of how the objects in your room will respond to sound.

Sound waves behave in the same way as light waves or "rays" and so imagine the driver to be a floodlight.

**Reflection:** acoustic energy is not converted but reflected in an orderly, predictable fashion.

**Diffusion:** acoustic energy is dispersed in a random and or disordered fashion.

**Absorption:** acoustic energy is converted into kinetic energy or heat. All or a majority of the sound energy is "soaked up" or disposed of by the object surface or room boundary.

### **Bi / Tri Amping**

The power that is delivered to your loudspeakers will have a direct effect upon the sound of your loudspeakers. You should select the best that you can afford. Separating the systems will deliver benefits that can easily be detected. We would not recommend using different amplifiers on different drivers.

### **Bi / Tri Wiring**

Improvements can be heard through separating the energy from each filter in the crossover. Cables vary in construction but a good quality cable should be low in impedance, inductance and capacitance. Do not use cables, which act as additional crossover components. Experimentation is crucial in this situation and a cable that works well in one situation / room / with a given amplifier, may not always perform as well when one of these variables are changed.

## Two channel loudspeaker positioning

There are no objective criteria that can be used to state precisely where loudspeakers should be positioned. Should any individual or company suggest that there is, they should be regarded as special people and treated with a great deal of caution. In the global scenario, our loudspeakers are driven by unique systems that are selected by the owner because of particular virtues. Every listening room is as individual and unique in character as the owner. Compound this complex picture with the combination of different equipment. Consider the changeability of rooms, if the room is dressed with heavy curtains simply changing the curtains position can alter the whole balance of the system. The only rule is that there are no rules. Like producing good wine, it is the goal that is the only guide. The owner is the pivot in this subtle balancing act.

The goal of high performance audio systems is accurate reproduction. The information, be it in groove or pit format should be transcribed, amplified and converted back into sound energy without the additional views of the audio equipment designer being combined with that translation process.

In order to make the task of positioning the loudspeakers less complex we would like to make the following suggestions. That most valuable commodity, time, is the most important ingredient in this process. Be prepared to make small changes over longer periods of time.

Select four musical passages that you are familiar with, that can fulfil the following tests.

- They should all be stereo recordings.
- Select one with a distinctive and easily heard human voice. Spoken voice is ideal.
- Select one passage with a full orchestra like The Pines of Rome.
- Select one that is very emotional for you.
- Select one that has a strong rhythm as in the case of dance music.

You should appraise the performance of the loudspeakers according to **your needs** based upon the tests above.

## Cinema Systems

- There is no industry standard for the positioning of speakers for home cinema, but there are some facts that should be considered when creating such a dedicated environment.
- Tactic® drive units are not shielded and should not be placed within 750mm of a television (cathode ray tubes). All Wilson Benesch speakers should be over one metre from any television. The angle from the screen should ideally be between 110 and 130 degrees.
- The loudspeakers should be identical. However Wilson Benesch loudspeakers use identical drive units and tweeters, so it is possible for the system to be comprised of more powerful channels at the front of the room and smaller systems being exploited for the surrounding field.
- The Centre channel is a critical component in any quality cinema system. It handles more than dialogue, which the ear is very sensitive to, as we are all very familiar with what the human voice should sound like.
- All Wilson Benesch loudspeakers can be classified as full range systems.
- Configure the subwoofer just for LFE.

## Spikes

The spikes are supplied installed with some systems and so great care should be taken when handling these systems. By careful tests you can adjust the speaker both in terms of toe in, and in terms of angle of position, should you wish to align the speaker you should arrange for an assistant to assist in this task. The position of the tweeter has been designed to function best for listeners seated in conventional relaxed seating positions. If required, for other situations such as listeners on higher seating or standing, the speakers can be tilted back so as to incline the tweeter.

## Magnet Precautions

The motors used in all Wilson Benesch speakers are built from the most powerful magnetic material in the world, Nd.Fe.B. Do not bring any metallic objects or sensitive electronic, electro magnetic or mechanical systems into close proximity of these devices, this includes pace makers or other critical devices. The company cannot accept responsibility for any damage or injury caused to any such systems as a result of accidental exposure. Extreme care must be taken with all Wilson Benesch Isobaric speakers as the Tactic® motor is exposed in these systems.

## Terminals

Wilson Benesch recommends the use of 8mm Ring or Spade Connector cable terminations.

A spanner is provided to nip up the gold plated nuts, but be careful. Please **do not over tighten** the terminals. The terminals also allow the use of banana plugs.

## Running In (70 hrs)

Like anything of good quality a period of running in tends to see improvements in performance. The speaker cabinet requires time to settle in to its surroundings. Climatic and humidity variations will take time to adjust to, and until such adjustments have been made the speaker will not perform at its best. The drivers require time to bed in physically, and relax materially. The carbon panels actually improve in structural integrity as they age. The quality of the sound that you hear when you first use your Wilson Benesch speakers, will improve quite significantly over time, though the change will not be instantly perceptible. Allow at least seventy hours of running in before making any subject judgements of the speakers performance.

## Surface Finish

Carbon fibre is a unique material with unusual physical and visual characteristics. We like to remain truthful about the fibrous nature of the material as opposed to concealing or obscuring it.

The natural wood components are manufactured using real-wood veneers. They will darken over time and, depending on the

climatic and heating conditions will stress relieve. This is a natural phenomenon that may cause slight changes in the dimensions of the wood. These are typically imperceptible.

The surface finishes applied to all Wilson Benesch loudspeakers require no further attention other than the occasional dusting. Treat the driver cones with respect and they will last a decade with relative ease.

Due to the angle of the cabinet top on the Chimera, A.C.T. and Discovery, the appearance of stains as a result of the inconsiderate placing of a glass is of course impossible. Care should be taken with the acrylic tops on the Arc, Discovery and Curve. A very soft lint free cloth should be used to gently wipe this surface.

With a little care the speakers will look as good in ten years as they do today and will probably sound even better!

## Other Adjustments

Under no circumstance should you make any adjustments to the systems parts. Any adjustments not described above as required by the setting up procedure will nullify all guarantees.

## Upgrades

Wilson Benesch upgrades made available as a result of technical advances in drive units will be made available through Wilson Benesch dealers. Qualified persons should only install these systems. Wilson Benesch cannot be held responsible for any damage to the loudspeaker or any other related equipment such as amplifiers if any other person undertakes this upgrade.

Should there be any question regarding the performance of this system you should refer to your dealer immediately for advice and or assistance. If in the unlikely event that the problem cannot be dealt with by your dealer do not under any circumstances return the goods to Wilson Benesch without prior agreement with the company

# The Odyssey Series

Arc  
Centre  
Curve  
Discovery  
Chimera  
Act

The Odyssey series was conceived from the Bishop Project and incorporates the same technology throughout the range. All the designs within the range are completely original in thought and execution and represent the State of the Art in loudspeaker design and manufacturing.

Alloy structures and complete monocoque carbon fibre composite systems ensure that the energy within the box remains where it should. This enclosure is quite simply beyond the limitations of all currently used materials used by other loudspeaker manufacturers and is years ahead of its time.

The ability to combine the systems is axiomatic, as all the drivers including the tweeter are identical. Subsequently the system can be expanded or adapted to any conceivable situation whether it is a reference two channel system or cinema surround field system.

The phase response characteristics are identical also due to the use of simple two and a half way crossover techniques.

Systems can be single or bi wired or to provide even greater control bi-amping techniques can be used.

A large range of finishes are available as standard and bespoke finishes in a vast array are available in both veneers and polymer finishes.

# Arc

## Technical Specifications

### Arc

Description	2 way, true linear phase, free space, ported enclosure, stand mounted monitor			
Drive units	1 x 170mm (7 in) Wilson Benesch Tactic bass / mid range unit 1 x 25mm (1 in) Soft dome, hand painted silk, ultra linear Wilson Benesch specification tweeter			
Low frequency loading	Double reflex port tuning			
Frequency range	-6dB at 42Hz and 30kHz -3dB at 45Hz and 25kHz			
Frequency response	46Hz to 24kHz +- 2dB on axis			
Sensitivity	88dB spl at 1metre on axis. 2.83V input			
Impedance	6 Ohms nominal, 4 ohms minimum			
Crossover	First order mid range crossover Second order tweeter crossover Selected polypropylene capacitors and air cored inductors are used throughout			
Crossover frequencies	5kHz			
Internal wiring	Multi stranded, silver plated copper, PTFE jacketed cable harnesses Soldered connections throughout Shortpath P.C.B. design Links supplied for single or bi-wire applications			
Input connections	Bi-wireable, in-house machined gold plated copper alloy terminals			
Power handling	200W peak unclipped programme			
Maximum spl	111dB at 1 metre			
Dimensions	Height	310mm	Height on stand	950mm
	Width	230mm		
	Depth	370mm		
Internal volume	10.5 litres			
Weight	10kg	(20Kg with Stand)		
Finishes available	<b>Polymer:</b> Black and Regal Silver. Stands may be ordered in either black or silver. <b>Wood Satin:</b> Nat Cherry, Maple, Oak. <b>Wood Gloss:</b> Birds Eye Maple, Burr Walnut, Red Tulip, Red Birds Eye Maple, White Gloss (includes stands).			

# Centre

## Technical Specifications

### Centre

Description	2.5 way, true linear phase, free space, ported enclosure, integral stand mounted monitor
Drive units	1 x 170mm (7 in) Wilson Benesch Tactic Isobaric bass unit 1 x 170mm (7 in) Wilson Benesch Tactic bass / mid range unit 1 x 25mm (1 in) Soft dome, hand painted silk, ultra linear Wilson Benesch specification tweeter
Low frequency loading	Double chamber, differential reflex tuning
Frequency range	-6dB at 40Hz and 30kHz -3dB at 43Hz and 25kHz
Frequency response	45Hz to 24kHz +- 2dB on axis
Sensitivity	88dB spl at 1metre on axis. 2.83V input
Impedance	6 Ohms nominal, 4 ohms minimum
Crossover	First order bass roll-off First order mid range crossover S420mm First order tweeter crossover Selected polypropylene capacitors and air cored inductors are used throughout
Crossover frequencies	500Hz / 5kHz
Internal wiring	Multi stranded, silver plated copper, PTFE jacketed cable harnesses Soldered connections throughout Shortpath P.C.B. design Links supplied for single or bi-wire applications
Input connections	Bi-wireable, in-house machined gold plated copper alloy terminals
Power handling	200W peak unclipped programme
Maximum spl	111dB at 1 metre
Dimensions	Height 310mm with top plate only 700mm with stand (can be made shorter on request) Width 470mm Depth 310mm
Internal volume	13 litres
Net weight	10kg (18Kg with Stand)
Finishes available	<b>Polymer:</b> Black and Regal Silver. Stands may be ordered in either black or silver. <b>Wood Satin:</b> Nat Cherry, Maple, Oak. <b>Wood Gloss:</b> Birds Eye Maple, Burr Walnut, Red Tulip, Red Birds Eye Maple, White Gloss (includes stands).

# Curve

## Technical Specifications

### Curve

Technology	Advance Composite Technology cabinet construction (A.C.T. Monocoque Advanced design allies 24 different materials to achieve the ultimate solution Tactic advanced dynamic drive unit technology Full metal bracing and baffle arrangement
Description	2.5 way, true linear phase, free space, ported enclosure, floorstanding monitor
Drive units	1 x 170mm (7 in) Wilson Benesch Tactic bass unit 1 x 170mm (7 in) Wilson Benesch Tactic bass / mid range unit 1 x 25mm (1 in) Soft dome, hand painted silk, ultra linear Wilson Benesch tweeter
Low frequency loading	Bessel alignment of fourth order reflex. Double chamber, differential tuning
Frequency range	-6dB at 32Hz and 30kHz -3dB at 35Hz and 25kHz
Frequency response	35Hz to 24kHz +- 2dB on axis
Sensitivity	88dB spl at 1metre on axis. 2.83V input
Impedance	6 Ohms nominal, 4 ohms minimum
Crossover frequencies	500 Hz / 5kHz
Crossover	First order bass roll-off Second order mid range and tweeter crossover Selected polypropylene capacitors and air cored inductors are used throughout
Input connections	bi-wireable, in-house machined gold plated copper alloy terminals
Power handling	200W peak unclipped program
Maximum spl	109dB at 1 metre
Dimensions	Height 910mm Width 230mm Depth 370mm
Internal volume	42.5 litres
Net weight	26kg
Finishes available	<b>Polymer:</b> Black and Regal Silver. <b>Wood Satin:</b> Nat Cherry, Maple, Oak. <b>Wood Gloss:</b> Birds Eye Maple, Burr Walnut, Red Tulip, Red Birds Eye Maple, White Gloss.

# Discovery

## Technical Specifications

### Discovery

Description	2.5 way, true linear phase, free space, ported enclosure, integral stand mounted monitor
Drive units	2 x 170mm (7 in) Wilson Benesch Tactic Isobaric bass units 1 x 170mm (7 in) Wilson Benesch Tactic bass / mid range unit 1 x 25mm (1 in) Soft dome, hand painted silk, ultra linear Wilson Benesch specification tweeter
Low frequency loading	Double chamber, differential reflex tuning of conventional and isobaric bass drivers
Frequency range	-6dB at 38Hz and 30kHz -3dB at 42Hz and 25kHz
Frequency response	45Hz to 24kHz +- 2dB on axis
Sensitivity	88dB spl at 1metre on axis. 2.83V input
Impedance	6 Ohms nominal, 4 ohms minimum
Crossover	First order bass roll-off First order mid range crossover Second order tweeter crossover Selected polypropylene capacitors and air cored inductors are used throughout
Crossover frequencies	500 Hz / 5kHz
Internal wiring	Multi stranded, silver plated copper, PTFE jacketed cable harnesses Soldered connections throughout Shortpath P.C.B. design Links supplied for single or bi-wire applications
Input connections	Bi-wireable, in-house machined gold plated copper alloy terminals
Power handling	200W peak unclipped programme
Maximum spl	110dB at 1 metre
Dimensions	Height 1100mm Width 230mm Depth 370mm
Internal volume	13 litres
Net weight	26Kg
Finishes available	<b>Polymer:</b> Black and Regal Silver. Stands may be ordered in either black or silver. <b>Wood Satin:</b> Nat Cherry, Maple, Oak. <b>Wood Gloss:</b> Birds Eye Maple, Burr Walnut, Red Tulip, Red Birds Eye Maple, White Gloss (includes stands).

# Chimera

## Technical Specifications

### Chimera

Description	2.5 way, true linear phase, free space, ported enclosure, floor standing loudspeaker	
Drive units	4x 170mm (7 in) Wilson Benesch Tactic Isobaric bass units 1 x 170mm (7 in) Wilson Benesch Tactic bass / mid range unit 1 x 170mm (7 in) Wilson Benesch Tactic ABR unit 1 x 25mm (1 in) Soft dome, hand painted silk, ultra linear Wilson Benesch specification tweeter	
Low frequency loading	Double chamber, ABR tuning of conventional drivers	
Frequency range	-6dB at 25Hz and 30kHz -3dB at 34Hz and 25kHz	
Frequency response	36Hz to 24kHz +- 2dB on axis	
Sensitivity	88dB spl at 1metre on axis. 2.83V input	
Impedance	4 Ohms nominal, 2.5 ohms minimum	
Crossover	First order bass roll-off First order mid range crossover Second order tweeter crossover Selected polypropylene capacitors and air cored inductors are used throughout	
Crossover frequencies	500 Hz / 5kHz	
Internal wiring	Multi stranded, silver plated copper, PTFE jacketed cable harnesses Soldered connections throughout Shortpath P.C.B. design Links supplied for single or bi-wire applications	
Input connections	Bi-wireable, in-house machined gold plated copper alloy terminals	
Power handling	200W peak unclipped programme	
Maximum spl	111dB at 1 metre	
Dimensions	Height	1420mm
	Width	230mm
	Depth	470mm
Internal volume	75 litres	
Net weight	70kg	
Finishes available	<b>Polymer:</b> Black and Regal Silver. <b>Wood Satin:</b> Nat Cherry, Maple, Oak. <b>Wood Gloss:</b> Birds Eye Maple, Burr Walnut, Red Tulip, Red Birds Eye Maple, White Gloss. (NB: Chimera top will be in carbon fibre)	

# White Paper On The A.C.T. Loudspeaker System From Wilson Benesch

## **Cabinetry materials replaced by engineering materials**

Carbon composite is of course the principal structural component in the new A.C.T. A complete U section not dissimilar to the monocoque in the Odyssey series is now used in the new A.C.T. but here we see the original and distinctive twill weave that has always been a part of the A.C.T. One and A.C.T. Two systems.

## **Baffle construction**

The alloy baffle has decreased in size in an effort to bring the drivers closer than previously possible with the MDF structures. A formidable combination of steel and aluminium is used as the reference for the latest version of the Tactic® drive unit 18mm thick at the baffle.

## **Latest version of the Tactic® Drive unit**

This has also benefited from changes to its mass both in the coil and the diaphragm the principal players in the dynamics of any drive unit. An edge wound aluminium coil has seen the mass of the coil halved this has provided the opportunity to stiffen the diaphragm further and reduce the overall mass without any negative side effects. The net result is a better controlled, more dynamic loudspeaker drive unit that sets new standards of performance.

## **Crossover type and location**

Although the crossover is fundamentally the same its location in the spine and at the bottom of the cabinet in the case of the bass inductor sees these sensitive components installed away from the airborne energy that can excite these systems in an undesirable way. Bi wiring has replaced the tri wiring option and the terminal is now the same type and location as the Chimera.

## **Silent port arrangement**

The porting arrangement has also been completely redeveloped, the mid range system is now vented at the base of the cabinet via the spine system at the back of the enclosure. This virtually eliminates the possibility of hearing any noise from the port whilst at the same time reducing any effects relating to rear wall reflections when placed close to the rear wall. The port arrangement for the bass is quite similar to the A.C.T. Two but improved through a further development of the port that now passes through a complex arrangement that sees the foot being brought in to play in an effort to reduce the high velocity movement of air still further.

## **Beauty**

Aesthetically the forms are svelte and precise in appearance. A more contemporary and attractive design that is clearly in keeping with current expectations for interior design conscious consumers who demand the very highest quality without sacrificing sonic performance. Build quality is exceptional with all parts assembled to the finest tolerances. Finishes are extensive and available in both straight veneer, burrs and birds eye wood types. For the demanding consumer we can offer bespoke options that mean that if it can be extracted without harming the planets ecosystems we can produce it. Architectural polymer finishes in Silver and black are also available and again colours can be specified that are capable of being matched to any interior colour scheme as another bespoke option.

## **Improving performance whilst reducing cost to the consumer**

The A.C.T. One price has been very stable with only one price rise in seven years. We can say with some pride that contrary to the norm in the industry all these changes have been introduced without incurring a price increase and in actual fact the price has been reduced! These considerable changes will underline Wilson Benesch's position at the forefront of technology at this sector of the market. The A.C.T. One broke the mould and challenged the loudspeaker industry of 1995. It was always going to be a hard act to follow but in this solution we believe that we have excelled ourselves. The A.C.T. One was always held in high esteem by all who heard it, and it is still used today as the Reference Loudspeaker system by the largest audio journal in the UK. It won twelve awards from every corner of the globe and sales have remained buoyant throughout its seven year reign, a C.V. that few if any could compare.

## **The new sound**

The new A.C.T. sounds even more like an electrostatic in the way that it conjures a three dimensional sound field with even more dynamism than the A.C.T. Two. It is more accurate and the increase in mass gives it an authority and presence that will embarrass other systems costing many times more. It is possible to say that the quality of reproduction from such a diminutive and elegant enclosure has never been achieved before and it is without doubt an appropriate and fitting tribute to the A.C.T. One and A.C.T. Two, designs which it replaces as of November 2002.

# The A.C.T.

## Technical Specifications

Description	2.5 way, true linear phase, free space, ported enclosure, floorstanding monitor
Drive units	1 x 170mm (7 in) Wilson Benesch Tactic bass unit 1 x 170mm (7 in) Wilson Benesch Tactic bass / mid range unit 1 x 25mm (1 in) Soft dome, hand painted silk, ultra linear Wilson Benesch specification tweeter
Low frequency loading	Bessel alignment of fourth order reflex. Double chamber, differential tuning
Frequency range	-6dB at 32Hz and 30kHz -3dB at 35Hz and 25kHz
Frequency response	35Hz to 24kHz +- 2dB on axis
Sensitivity	88dB spl at 1metre on axis. 2.83V input
Impedance	6 Ohms nominal, 4 ohms minimum
Crossover	First order bass roll-off Second order mid range and tweeter crossover Selected polypropylene capacitors and air cored inductors are used throughout
Crossover frequencies	500 Hz / 5kHz
Internal wiring	Multi stranded, silver plated copper, PTFE jacketed cable harnesses Soldered connections throughout Shortpath P.C.B. design on mid range and tweeter crossover Link wires supplied for single or bi-wire applications.
Input connections	bi-wireable, in-house machined gold plated copper alloy terminals
Power handling	200W peak unclipped programme
Maximum spl	111dB at 1 metre
Dimensions	Height 1080mm Width 230mm Depth 370mm
Internal volume	42.5 litres
Net weight	44kg
Finishes available	<b>Polymer:</b> Black and Regal Silver. (NB: ACT top will be in high build piano gloss) <b>Wood Satin:</b> Nat Cherry, Maple, Oak (NB: ACT top will be wood finish) <b>Wood Gloss:</b> Birds Eye Maple, Burr Walnut, Red Tulip, Red Birds Eye Maple, White Gloss (NB: ACT top will be in high build piano gloss)

