



User Guide

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

To the music connoisseur

The Wilson Benesch badge denotes more than just a loudspeaker. The company has earned a global reputation that is second to none in the field of high performance sound reproduction. Uniquely, this reputation has been won largely through word of mouth. Behind every design, is a creative strength that has won critical acclaim and countless awards.

You now own a product that will provide year after year of pleasure for the owner, and all who come across it within the comfort and security of your own home.

The purchase of a Wilson Benesch loudspeaker is merely the beginning of a long term relationship. The Wilson Benesch Square Series loudspeakers are guaranteed for two years.

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 still in 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-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-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 is 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

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 Square Series

Square One

Square Two

Centre Square

The Centre Square was conceived from the Torus Project. The work on structural borne vibration that was done during this project, provided a fresh view on cabinet design with MDF. Although we regard M.D.F. as a soft material, it should be appreciated that the side walls of the cabinet are enhanced by steel or alloy plates, and damped by glossy polymers, in order to ameliorate these structural borne artefacts. The principal innovation in the Square design is the A.B.R. (assisted Bass Radiator). Of course this is not new. The A.B.R. has been used many times before, in previous designs in order to boost low frequency output, in the same way that the port does. However, in the Square, the principal role of this component, is to convert unwanted negative energy from the back of the drive unit into heat. Unlike every other loudspeaker to date, the back wall of the Square is in fact designed to flex. By absolving the rear wall of much of its structural responsibility, the communication of structural borne vibration is significantly reduced. The A.B.R. does provide some bass re-inforcement also, but as you can appreciate in the Wilson Benesch A.B.R., the function is more complex. We believe that this is the first loudspeaker to function in this way.

All the components other than the cabinet are taken directly from the Odyssey Series of loudspeakers. They are State of The Art elements that are manufactured by Wilson Benesch, and hand assembled, before being soldered into the loudspeaker. The ability to combine Square loudspeakers with other Wilson Benesch designs 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 be a reference two channel system or cinema surround field system.

As in the Odyssey Series, great care is taken to ensure that the phase response characteristics are as pure as possible. Few companies have the ability to fine tune every single facet of the design, to achieve the exact component for each design objective. Our manufacturing capability, allows us the luxury of incremental improvement, and an obsessive pursuit of the simple as opposed to the complex solution. The Square is an excellent example of this reductionist philosophy.

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

Square One

Technical specifications

Square One

Description	2 way, true linear phase, boundary located, stand mounted monitor		
Drive units	1 x 170mm (7 in) Wilson Benesch Tactic MID bass units 1 x 25mm (1 in) Soft dome, hand painted silk, ultra linear Wilson Benesch specification tweeter		
Low frequency loading	Assisted Bass Radiator		
Frequency range	-6dB at 58Hz and 30kHz -3dB at 65Hz and 25kHz		
Frequency response	58Hz to 24kHz +- 2dB on axis		
Sensitivity	87dB spl at 1metre on axis. 2.83V input		
Impedance	6 Ohms nominal, 4 ohms minimum		
Crossover	Second order tweeter Selected polypropylene capacitors and air cored inductors are used throughout		
Crossover frequencies	Mid		
	Tweeter		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 rhodium plated copper alloy terminals		
Power handling	200W peak unclipped programme		
Maximum spl	108dB at 1 metre		
Dimensions	Height	325mm	
	Width	200mm	
	Depth	285mm	
Internal volume	10.5 litres		
Weight	15kg	With Stand	22kg
Finishes available	High Build Piano Black Gloss, Burr Walnut Gloss, Maple Satin, Stained Cherry Gloss.		
Stand	Regal silver or black		

Square Two

Technical specifications

Square Two

Description	2 way, true linear phase, boundary located, floor standing	
Drive units	1 x 170mm (7 in) Wilson Benesch Tactic MID bass units	
Low frequency loading	1 x 25mm (1 in) Soft dome, hand painted silk, ultra linear Wilson Benesch specification tweeter	
Frequency range	Assisted Bass Radiator and precision vented foot port	
	-6dB at 50Hz and 30kHz	
	-3dB at 55Hz and 25kHz	
Frequency response	40Hz to 24kHz +- 2dB on axis	
Sensitivity	87dB spl at 1metre on axis. 2.83V input	
Impedance	6 Ohms nominal, 4 ohms minimum	
Crossover	Second order tweeter Selected polypropylene capacitors and air cored inductors are used throughout	
Crossover frequencies	Mid	
	Tweeter	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 rhodium plated alloy terminals	
Power handling	200W peak unclipped programme	
Maximum spl	108dB at 1 metre	
Dimensions	Height	975mm
	Width	200mm
	Depth	255mm
Internal volume	34 litres	
Weight	24kg	
Finishes available	High Build Piano Black Gloss, Burr Walnut Gloss, Maple Satin, Stained Cherry Gloss.	

Centre Square

Technical specifications

Centre

Description	2.5 way, true linear phase, boundary located, 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 48Hz and 30kHz -3dB at 50Hz and 25kHz		
Frequency response	50Hz to 24kHz +- 2dB on axis		
Sensitivity	878dB spl at 1metre on axis. 2.83V input		
Impedance	6 Ohms nominal, 4 ohms minimum		
Crossover	First order bass roll-off First order tweeter crossover Selected polypropylene capacitors and air cored inductors are used throughout		
Crossover frequencies	Bass		500Hz
	Mid		
	Tweeter		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 rhodium plated alloy terminals		
Power handling	200W peak unclipped programme		
Maximum spl	111dB at 1 metre		
Dimensions	Height	210mm	
	Width	790mm	
	Length	200mm	
Internal volume	14 litres		
Weight	22kg	With Stand	34kg
Finishes available	High Build Piano Black Gloss Burr Walnut Gloss, Maple Satin, Stained Cherry Gloss		