

Wilson benesch

FIBONACCI SERIES
User Manual

Dear Valued Customer,

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 companies. We are honoured that you have chosen a Fibonacci Series product for your personal audio system. Our team of engineers, craftspeople and designers have devoted every effort to manufacture this reference class product and we are extremely proud to present it to you. Our products are engineered to last a lifetime and we wish you many hours of enjoyment from your music collection with a Wilson Benesch Loudspeaker at the heart of the system.

Before starting your journey, we encourage you to pay special attention to the information contained in this manual. All Fibonacci Series products have been designed and built with precision. However, in order to extract maximum performance from the product, it is critical that it is setup correctly. Should you have any questions or require assistance, please do not hesitate to contact your authorised dealer or distributor.

On behalf of all the Team at Wilson Benesch,

A handwritten signature in black ink, appearing to be 'Craig Milnes', with a stylized, elongated initial 'C'.

Craig Milnes, Design Director

A handwritten signature in black ink, appearing to be 'Christina Milnes', with a stylized, flowing initial 'C'.

Christina Milnes, Managing Director

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1.0 Product Registration

Please register your product within 30-days of receipt of your Wilson Benesch product. Completion of the product registration within 30-days of receipt will validate a full 5-year warranty provided all conditions detailed in section '4.7 - Limited Warranty' are satisfied. Please refer to our terms and conditions at the back of this product manual for more information. Product registration can be completed by returning the 'Product Registration' card that is supplied with your Fibonacci Series product, please complete all fields fully to validate your product warranty.

1.1 Unpacking: Important points before setup and Warnings

Before unpacking your new Wilson Benesch loudspeakers, please observe the instructions in this manual. Furthermore, please note the check list on the opposite page for what is included in the product packaging.

During installation please observe normal procedures for lifting and correct posture when handling the speakers. It is strongly recommend for the smaller products that two people work together to unpack the product. With the largest products in the Fibonacci Series at least three people will need to work together to unpack the product and safely install it. Never attempt to unpack or install speakers without assistance as this can result in damage or personal injury. It is strongly recommended that all watches and jewellery be removed prior to unpacking and gloves worn to allow better grip of the product and protection to the surface finish.

Patient and careful setup is essential to obtain the maximum performance from this system. Special care and attention must be taken to ensure that no pressure is applied to the drivers and in particular, the tweeter dome, when handling or moving the product from the packaging.

Once the speakers have been stood in an upright position on their terminations the supplied protective coverings can be removed and the packaging stored for future use. This packaging is essential for safe shipment of the product. It is designed and tested specifically for use with this product. Due to the bespoke nature of the packaging, replacement costs are not insignificant and it is highly recommended therefore, that the packaging is retained for any potential later use.

1.2 What is in the Box

	Discovery 3Zero	Endeavour 3Zero	A.C.T. 3Zero	Resolution 3Zero	Omnium	Eminence
Product Manual	•	•		•	•	•
Warranty Registration Card	•	•		•	•	•
1x WB Spanner 13/22mm	•	•		•	•	•
1x 6mm Allen Key for installation / removal of foot plates		•		•	•	•
1x 5mm Allen Key for installation / removal of port bung		•				
1x 17mm Socket Wrench					•	•
1x 13mm Socket Wrench					•	•
1x 10mm Socket Wrench					•	•
1x Air Wedge					•	
3x Lifting Handles for Loudspeaker Top Box					•	
4x Baffle Blanking Caps					•	
2x Spine Blanking Caps					•	
6x Spiked Terminations	•	•				
8x Spiked Terminations			•	•	•	•
6x Kinematic Location Cups	•	•				
8x Kinematic Location Cups			•	•	•	•
2x Product Grille(s)	•	•	•	•	•	•
2x Loudspeaker Covers	•	•	•	•	•	•
2x Port Bungs		•				
2x Terminal Link Leads	•	•	•	•	•	•

2.0 The Subject of Room Acoustics

Acoustics is a complex subject and this text should be treated for what it is – a simple but informative guide. For a deeper understanding we would recommend seeking out a range of texts on the subject which can be used in conjunction with basic measurement equipment such as a tape measure, laser measure and spirit level.

It is important to respect the role that the room and its contents will have 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 this air behaves is dependent upon the attributes or character of the room. It follows that a better understanding of basic acoustics will assist in making decisions about the way in which the room and subsequently the system can be initially installed and ultimately improved. We strongly recommend that customers have your Wilson Benesch dealer do the final voicing and positioning of your Wilson Benesch loudspeaker with you.

Room types fall between two extremes. A room can be 'dead' – being full of highly acoustic energy absorbent materials. Or a room may be 'lively' – with a high proportion of non-absorbent, hard, reflective surfaces. A combination of materials with different acoustic properties will in general allow the listener to achieve a balance between these extremes, which is of course preferable to either extreme at which point the performance and accuracy of the music's presentation will suffer.

The contents of a room will impact upon its overall acoustic character. As you would expect harder surfaces like glass, concrete or wooden floors tend to reflect and/or diffuse a broad band of acoustic energy. Complimentary materials that are soft and thick such as heavy natural fibre curtains, large rugs or soft acoustic panels will tend to absorb a broad band of frequencies.

2.1 Standing waves

When sound waves reflect between two parallel surfaces, the distance apart being equal to half the wavelength or less, dependent upon wave size, resonance modes referred to as 'standing waves' are created. 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 or cancelling 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 the presentation of any loudspeaker.

2.3 Reflection, Absorption, Diffusion

The upper-range of frequencies is generally affected more by room contents than room shape. The surfaces and how they reflect, absorb or diffuse acoustic energy will tend to describe the 'sound' of a room. As is the case with all forms of energy, acoustic energy cannot be destroyed it can only be converted or reflected. The shape, thickness and material type of a surface will determine how the sound is reflected, how much of it is reflected and also how much is absorbed and converted into heat or kinetic energy. Depending on the frequencies in question, the thickness, density and material of the surface or boundary, some energy may pass through entirely. This behaviour is commonly observed in the lower range of frequencies, being comprised of larger wave lengths that can pass through wall or ceiling boundaries and into an adjacent room, while the upper frequencies are either absorbed or reflected back inside the listening room.

Diffusion occurs when acoustic energy is reflected by a surface and dispersed in a random and/or disordered fashion. Usually diffusion will occur when the acoustic energy meets a non-uniform or uneven surface. A tightly packed book shelf with books of different sizes and profiles is one example of a commonly found listening room boundary which can result in diffusion of the upper frequencies.

Diffusion of sound energy at key areas of the listening room is often less damaging to system accuracy and therefore preferable to orderly reflection. In the case of reflection, the quantity of indirect sound reaching the listening position will be greater and therefore more influential. This mixing of indirect and direct sound at the listening position can result in audible inaccuracies and artefacts.

It should be appreciated that sound waves behave in much the same way as light waves or 'rays'. To imagine the loudspeaker driver as a floodlight can be helpful in determining which areas of the listening space are critical to the performance and accuracy of the system. The key "first points of reflection" can be roughly identified by having an assistant hold a mirror on each side wall while you are positioned in the listening chair. Once the speaker drivers can be seen in the mirror from the listening position the impact of this identified area should be considered in light of the above basic principles. By the same token, the first reflection point on the ceiling can also be considered for its influence as a first point of reflection.

Although many listening rooms are unsuitable for professional acoustic treatment products due to their dual role as a living and listening space, it can still be possible to make small but appreciable improvements by rearranging furniture, system components and of course the listening position. Consider the changeability of rooms; if the room is dressed with heavy curtains simply changing the curtains position can alter the balance of the system. It is the goal that is the guide and the owner is the pivot in this subtle balancing act.

2.4 Loudspeaker and Listening Position

The system, comprised of different components, installed in a room with a unique acoustic character and every listener's individual taste, should be appreciated as a unique sum comprised of a great many variables. It should be considered that in this balancing act experimentation is critical to getting the best from the system and more importantly, tuning to the listener's own satisfaction. There is no one simple set of rules for speaker placement that will fit for every scenario within which a Wilson Benesch loudspeaker is installed. It is for this reason that no minimum or maximum parameters are stated for the positioning of each product. The listening position should also be evaluated in the same manner.

The distance between the speakers in relation to the distance from each speaker to the listening position will impact on the size of the sound stage presented. Additionally, if the listening position is moved closer to the speakers, the proportion of reflected sound to direct sound will decrease. A great many recommendations describe an equilateral triangle, whereby the distance between each speaker and the listening chair are the same, but again, experimentation is the key. A larger distance between the speakers can result in a larger and more engaging presentation. The distance between the speaker and rear and side walls, should also be considered. Bass performance in particular will often suffer wherever a speaker is too close to one of these boundaries, resulting in "boomy" or over-bloated bass and/or cancellations. This affect is more pronounced still, when placing the speaker into a corner where two boundaries meet.

The most valuable commodity in this process is time. Be prepared to make small changes over long periods of time. Wiring up the loudspeaker and commencing the burn in period is advisable. Whilst optimal setup cannot be achieved without completing the burn in period, it is generally possible to gain some understanding of how the loudspeaker is integrating within the room during this period and start to experiment with positioning.

Once the 168-hour running in period has elapsed, the final positioning and fine tuning of the system can begin in earnest. Parameters such as toe and rake angles should yield quite marked changes in the presentation.

We would recommend selecting four musical passages as outlined below in helping you evaluate the various speaker positioning parameters and the effects of changing these.

- 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 and a good portion of bass content, as found in a typical dance music track for example.

2.5 Speaker Toe-in

The amount of speaker toe-in will define a sharper centre image at the expense of image width. The upper frequencies will become more pronounced as you bring the tweeters on axis with your ear at the listening position. While we generally recommend at least some speaker toe-in, the amount is not a precise or fixed value. Experimenting here is advisable and evaluation at the listening position while an assistant makes toe-in adjustments is one method to achieve the best balance.

2.6 Spikes & Speaker Rake Angle

The position of the tweeter has been designed to function best for listeners seated in conventional relaxed seating positions. However, the rake angle of the speaker can be changed by adjusting the installed speaker spikes. Tilting the speaker back slightly will have the effect of projecting the perceived sound stage a little higher. This can also change the perceived balance of the upper frequencies, as the tweeter will be most prominent when it is on axis with your ear at the listening position.

2.7 Loudspeaker Clearance and the Bass Port

For those loudspeakers that feature a bass port on the underside of the foot, the low frequency can be augmented in much the same way that it would should you place the loudspeakers next to a wall. That is to say, adjustments in the overall clearance of the loudspeaker port from the floor will change the overall balance in the system. Generally it can be observed that a smaller clearance and closer placement to the floor will result in a more augmented low frequency characteristic to the loudspeaker presentation, where a larger clearance between the floor and the bass port will result in a less augmented low frequency characteristic to the presentation. This is a critical step in the loudspeaker setup procedure and in many cases the balance of the system will change considerably as this parameter is adjusted.

2.8 Kinematic Location Cups or Spikes

In listening rooms with a carpet Wilson Benesch recommend using spiked termination, where the objective is to drive through the carpet and into the sub-floor to achieve maximum stability for the speaker. For hard floors or low-pile carpets use of Kinematic Location Cups is recommended.

3.0 Bi-Amping

Bi-Amping can give the amplifiers more control over the drivers, separating these systems can deliver benefits but it is not always the best solution and must be experimented with. It is generally not recommended to bi-amp using different types and/or makes of amplifier for different driver sections.

3.1 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 that act as additional crossover components. Experimentation is crucial in this situation and a cable that works well in one situation with a given amplifier may not always perform as well when one of these variables is changed.

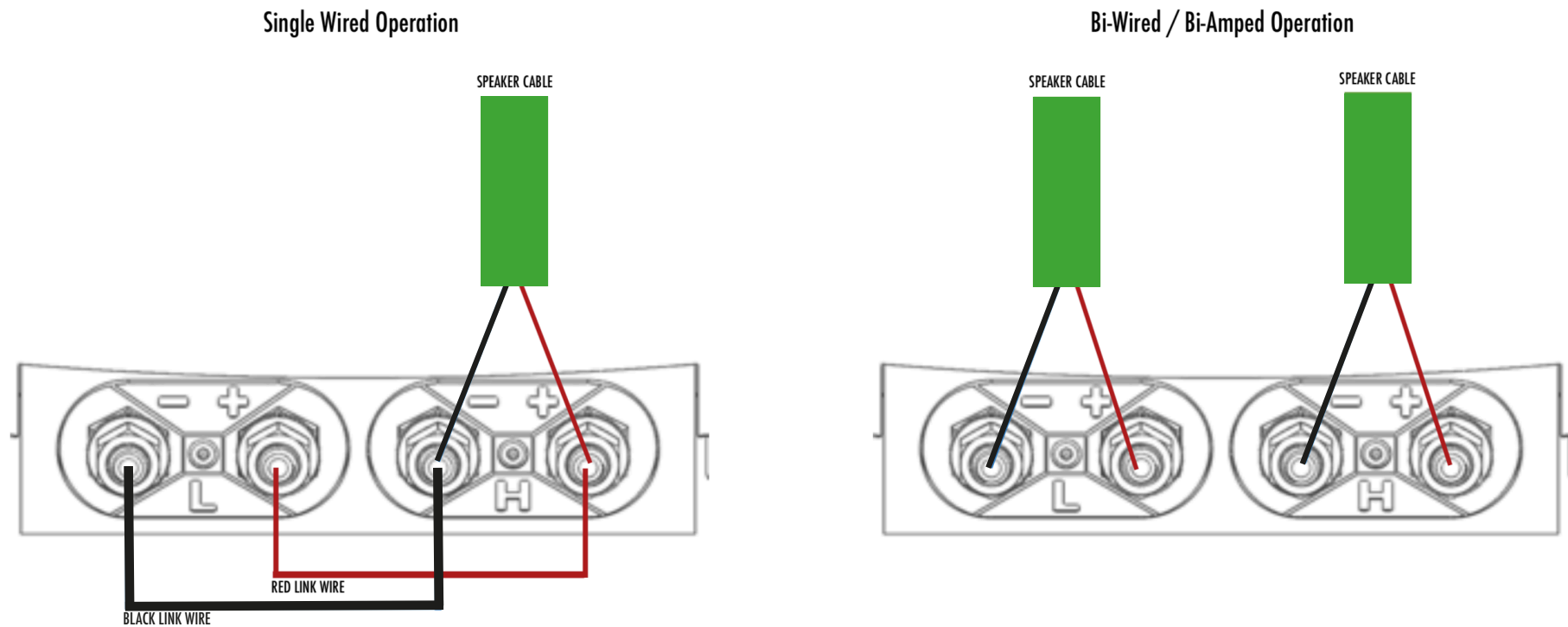
3.2 Terminals

Wilson Benesch recommends the use of 8mm ring or spade connector cable terminations. A spanner is provided to tighten up the rhodium plated nuts. A light pinch of the end of the supplied spanner is more than sufficient to tighten the nuts. Please be careful to not over tighten the terminals as this could result in damage to the terminal plate or snapping of the terminal. The terminals will also accept 4mm banana plugs.

3.3 Loudspeaker Terminal Wiring

Wilson Benesch Fibonacci Series loudspeakers have two pairs of terminal lozenges that are positioned at the rear of the foot of the speaker and are supplied with link wires for linking the terminals for single wired or bi-wired operation. Figure 1. Shows the terminal on the Fibonacci Series.

Figure.1:



4.0 Stable Listening Room Environment & Surface Finishes

A Wilson Benesch loudspeaker is constructed from high quality materials and surface finishes that are durable. However these products are electronic devices, constructed from precision components, with specialist luxurious finishings applied. Therefore your Wilson Benesch loudspeaker should be cared for and protected at all times from high humidity, air pollutants and water. Loudspeakers should not be left in direct sunlight. Direct sunlight will heat the surface finishes of the loudspeaker and damage the finishing. During periods when the loudspeakers will not be used, it is recommended that they are covered.

In areas of the world where high humidity, and or, air pollution is prevalent such as in large city areas, Wilson Benesch highly recommend the use of air purifiers and air conditioning to maintain a steady state, stable environment for your loudspeakers and electronics.

Drive Unit Rubber Surrounds: The rubber surrounds used by Wilson Benesch have an agent added during manufacturing that is designed to react with pollutants in the air to protect the rubber. A characteristic grey discolouring of the rubber surround is a sign that the rubber is reacting. This can be cleaned from the surface and the normal black appearance returned, by using a cloth with a small amount of deionised purified water to dampen the cloth. It is important not to spread water onto other surface finishes or leave any surface water, the cloth should be only slightly damp.

No other cleaning products or chemicals should be used on the surface finishes and in particular the drive units must not under any circumstances be cleaned with any chemicals.

4.1 Running-in (168-hours)

The quality of the sound that you hear when you first use your Fibonacci Series loudspeakers will improve significantly over time. However, the biggest changes to the performance of your Fibonacci Series loudspeaker will take place during what is commonly known as the running-in or burn-in period. Wilson Benesch recommends at least one hundred and sixty-eight (168) hours of running in before making any subjective judgements of the speaker's performance, but the loudspeaker will continue to improve well beyond this.

4.3 Partnering Products

There are a huge number of products available throughout the world that can be partnered with Wilson Benesch loudspeakers and it would not be helpful to the end user to make any specific recommendations for any particular cabling or electronics products that are “guaranteed” to meet or exceed all of the expectations for the end user. System matching and synergy is a balancing act. Every listener is unique and what works well in one situation will not necessarily be the best way forward in another. Auditioning is critical to getting the best from any investment and specifications alone will only give an indication of performance. While the power specifications of any potential partnering amplifiers should be considered, there are of course many other factors that will influence how well a particular amplifier is able to drive a loudspeaker.

All Fibonacci Series loudspeakers will deliver great insight into what is happening upstream of the speaker, in both the electronics and of course the program material. The presentation is capable of changing vastly depending on what components you choose to place before the loudspeaker. It follows that the system will pay great dividends if time is taken to evaluate and choose components that work well together and meet your own expectations for your system.

4.4 Handwheel and Extension Plate Removal

The extension plates are secured in position by large M6 allen head bolts. Generally there is no reason to need to remove these, however an M6 allen wrench is supplied to allow removal.

4.5 Other Adjustments

Under no circumstance should you make any adjustment to the system’s parts. Any adjustments not described as required by the setting up procedure will void the manufacturer warranty. Should there be any questions 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.

4.6 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, electromagnetic 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 driver motor is exposed in these systems.

5.0 Limited Warranty

Subject to the conditions set forth herein, Wilson Benesch warrants its loudspeakers to be free of manufacturing defects in material and workmanship for the Warranty Period. All shipments from Wilson Benesch are provided to our import partners under ex-works terms, therefore the Warranty Period is a period of ninety (90) days from the date of shipment recorded on the shipping confirmation form retained by Wilson Benesch when the product leaves the factory in England. The Warranty Period is only provided to the original purchaser only. If both of the following two conditions are met, the Warranty Period can be extended to a period of five (5) years, from the date of shipment, for the original purchaser:

Condition 1. No later than thirty (30) days after product delivery to the customer, the customer must have returned the Warranty Registration Card provided with the product to Wilson Benesch. This can be completed digitally or posted to the Wilson Benesch factory at the address provided on the Warranty Registration Card.

Condition 2. The product must have been professionally installed by the Wilson Benesch dealer that sold the product to the customer.

FAILURE TO COMPLY WITH EITHER CONDITION 1 OR CONDITION 2 WILL RESULT IN THE WARRANTY PERIOD BEING LIMITED TO A PERIOD OF NINETY (90) DAYS ONLY.

5.1 Conditions

This Limited Warranty is also subject to the following conditions and limitations. The Limited Warranty is void and inapplicable if the product has been used or handled other than in accordance with the instructions in the owner's manual, or has been abused or misused, damaged by accident or neglect or in being transported, or if the product has been tampered with or service or repair of the product has been attempted or performed by anyone other than Wilson Benesch or an authorised Wilson Benesch Dealer Technician or a Technician of an authorised Importer of Wilson Benesch. Contact Wilson Benesch at +44 (0) 114 285 2656 for information on location of Wilson Benesch authorised service and repair centres. Most repairs can be made in the field. In instances where return to Wilson Benesch's factory is required, the dealer or customer must first obtain a return authorisation. The purchaser must pay for shipping to Wilson Benesch. In the event that the product defect is deemed to be due to a manufacturing defect or failure of the component covered under the Limited Warranty, Wilson Benesch will pay for shipping of its choice to return the product to purchaser. In the event that the product defect is deemed to have resulted from misuse, abuse, accidental damage or neglect, or if the product has been tampered with or service of repair has been attempted by someone not authorised, the return of the product to the customer will be at the sole expense of the customer. **A RETURNED PRODUCT MUST BE ACCOMPANIED BY A WRITTEN DESCRIPTION OF THE DEFECT.**

Wilson Benesch reserves the right to modify the design of any product without obligation to purchasers of previously manufactured products and to change the prices or specifications of any product without notice or obligation to any person.

5.2 Remedy

In the event that the product fails to meet the above Limited Warranty and the conditions set forth herein have been met, the purchaser's sole remedy under this Limited Warranty shall be to:

- (1) contact an authorised Wilson Benesch Dealer within the Warranty Period for service or repair of the product without charge for parts or labour. The service or repair shall take place either at the location where the product is installed or at the Dealer's place of business, at the dealers option. or,
- (2) if purchaser has sought timely service or repair and the product cannot be serviced or repaired by the dealer, then the purchaser may obtain a return authorisation from Wilson Benesch and at purchaser's expense return the product to Wilson Benesch where the defect will be rectified without charge for parts or labour.

5.3 Warranty Limited to Original Purchaser

This Limited Warranty is for the sole benefit of the original purchaser of the covered product and shall not be transferred to a subsequent purchaser of the product.

5.4 Demonstration Equipment

Equipment, while used by an authorised dealer for demonstration purposes, is warranted to be free of manufacturing defects in materials and workmanship for a period of five (5) years from the date recorded on the shipping confirmation form retained by Wilson Benesch when the product leaves the factory in England.

Demo equipment needing warranty service may be repaired on-site or, if necessary, correctly packed and returned to Wilson Benesch by the dealer at dealer's sole expense. In the event that the product defect is deemed to be due to a manufacturing defect or failure of the component covered under the Limited Warranty, Wilson Benesch will pay for shipping of its choice to return the product to purchaser. In the event that the product defect is deemed to have resulted from misuse, abuse, accidental damage or neglect, or if the product has been tampered with or service of repair has been attempted without authorisation from Wilson Benesch, the return of the product will be at the sole expense of the dealer. A returned product must be accompanied by a written description of the defect.

Dealer owned demonstration equipment sold at retail within two (2) years of date of shipment from Wilson Benesch is warranted to the first retail customer to be free of manufacturing defects in materials and workmanship for three (3) years. Wilson Benesch ex-demonstration products are warranted to the first owner for a period of ninety (90) days, unless extended to three (3) years by satisfying condition 1 and 2 detailed section '5.0 Limited Warranty'.



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