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# **User Manual**

**Quested Monitoring Systems**

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## **1. Introduction**

Thank you for purchasing your Qusted product and whether it is a pair of passive monitors or a 4 way active system you can be assured the same care has gone into its design and manufacture. You can be sure you have purchased one of the finest monitors in the world and if you take time and care in positioning and aligning the system you will appreciate why Qusted monitors have a reputation for faithful reproduction covering the entire audible spectrum. They are professional monitors, and are not designed to flatter, but faithfully reproduce. Please take care to maintain the system and you will obtain many years of service

Please take the trouble to complete the registration form that came with your monitors. This will help us in the future, should you raise any queries. If you have any questions please address them to your Qusted representative, who will then refer back to the designer and manufacturer if necessary. In this way, you will be assured in obtaining the best possible performance and long term reliability of your system.

This manual covers the VH3208 3 way passive monitor.

Please read this manual, which we have kept as concise as possible, it really will help you and covers important safety considerations.

The VH3208 is a 3 way passive monitor and can be used soffit mounted or free standing. They are suitable for use as main monitors in smaller control rooms or as mid field reference monitors in larger rooms. The bass drivers are fully magnetically shielded and a fully magnetically shielded tweeter is available as an option, although in practice this is rarely required as the VH3208 can be used in close proximity to TV and computer monitors in its standard form. If you require the shielded tweeter please contact your dealer or distributor.

Typical applications include post production suites, broadcast, audio visual, project studios, surround sound, midfield reference monitors and main monitors in small to medium sized control rooms.

A pair of VH3208 are ideally driven by a Qusted AP800 amplifier, but other amplifiers with a power output of between 200-700 watts RMS per channel can be used.

The low frequency performance is more than adequate for most situations, but can be further extended by combining it with the VS1115 15" sub bass to extend the frequency response down to 20Hz. The VS1115 is also ideal when a discrete sub channel is required for formats such as Dolby 5.1

## **2. Safety Considerations**

### **2.1 General**

THE VH3208 HAS BEEN DESIGNED IN ACCORDANCE WITH INTERNATIONAL SAFETY STANDARDS. THE FOLLOWING WARNINGS MUST BE FOLLOWED TO ENSURE SAFE OPERATION OF THIS EQUIPMENT.

**CAUTION:** ALWAYS REPLACE THE BARRIER STRIP COVER PLATE ON THE MONITORS AFTER CONNECTING THEM TO THE AMPLIFIERS, AS AUDIO SIGNAL CABLES CAN CARRY DANGEROUS VOLTAGES AT HIGH MONITORING LEVELS.

**CAUTION:** THIS UNIT CONTAINS MAGNETIC COMPONENTS WHICH MAY EFFECT ADJACENT SUSCEPTIBLE EQUIPMENT.

### **2.2 Hearing Damage**

This equipment can deliver sound pressure levels in excess of 110dB. At this level permanent hearing damage can occur and exposure to this level of sound, even for relatively short periods (see table below), can be harmful. Of equal importance to the maximum level of sound is the exposure to high levels of sound for extended periods. There are no international agreed limits and different countries have different limits measured in differing ways. IT IS THEREFORE IMPORTANT THAT THE USER ESTABLISHES THE RECOMMENDED, AND IN SOME TERRITORIES, LEGAL LIMITS, THAT ARE IN PLACE.

As a guide the table below shows the levels that are acceptable in the majority of Western Europe and the US & Canada.

<b>SPL dB(A)</b>	<b>Listening time per day</b>
90	8 hours
95	2.4 hours
100	40 minutes
105	15 minutes
110	5 minutes
115 and over	Not at all

It is also important to note that the effect of exposure to sound is cumulative. Having listened to sound, for example, for 15 minutes at 105 dB then further exposure to noise levels above 80dB should be avoided until the next day.

## **3. Unpacking**

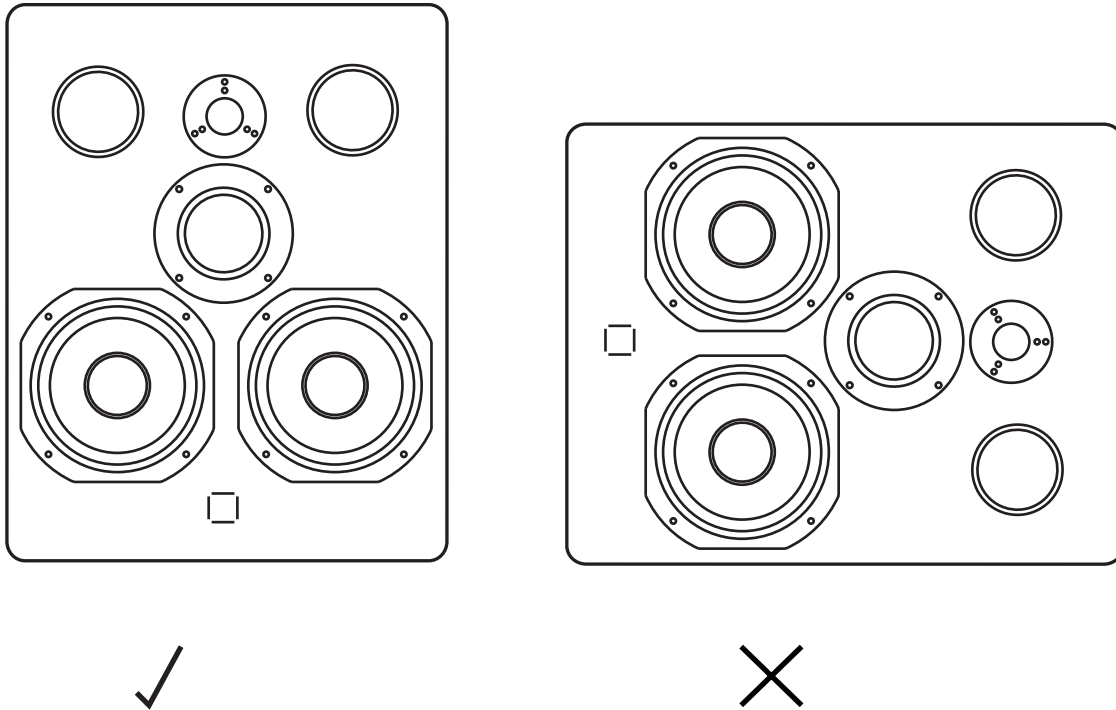
This Quested product has been carefully manufactured, tested and packed to ensure it arrives in a flawless condition. The component parts of the packing have been thoughtfully designed to offer sufficient protection during transportation, yet remain fully recyclable and should be retained for future use.

## 4. Installation

### 4.1 Positioning

The VH3208 is designed to be mounted vertically and should not be turned on its side into a position where the high & mid drivers are aligned vertically. This would result in a degradation of the speakers stereo imaging performance.

The VH3208 can either be soffit mounted or positioned on speaker stands, but whichever way is chosen, the support should be rigid and must not vibrate when the monitor



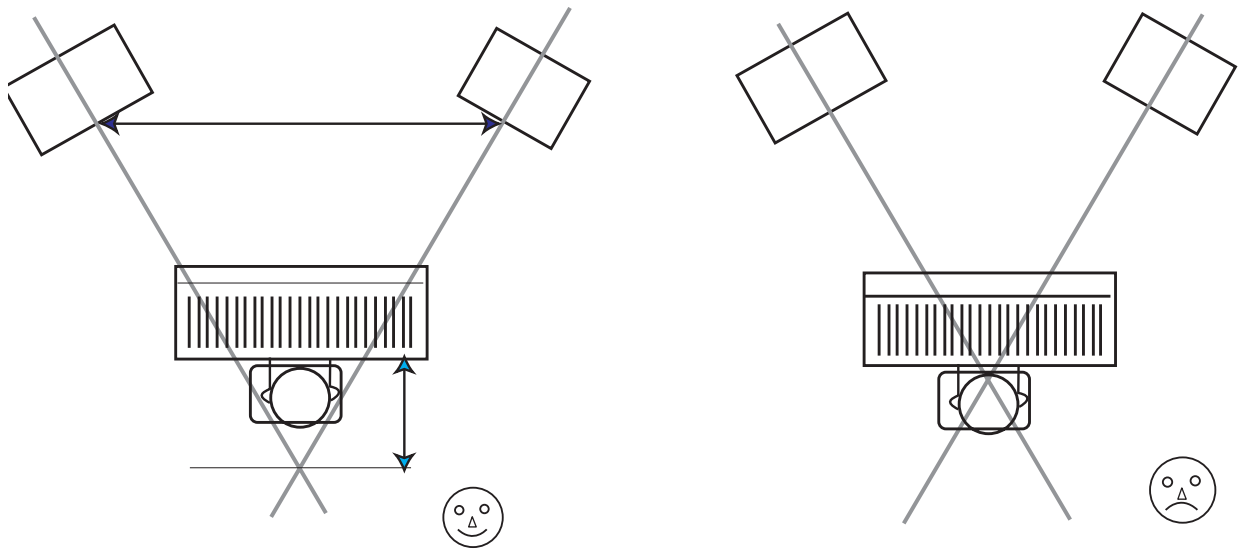
is driven. Vibrations will result in lack of low frequency definition. Its positioning close to or away from the rear wall and proximity to any room corners is best determined by experimenting and placing the speaker in differing positions. The shape of the room, normal listening position and room treatment will all have an effect on determining the speakers positioning.

Placing the cabinet against a wall will reinforce the bass performance of the speaker and up to an additional 3dB may be obtained. Placing the monitors in a corner will further reinforce the bass performance and gains of up to 6dB may be achieved, but be very careful about siting the monitors in a room corner because it can excite standing waves and create an unpleasant boominess.

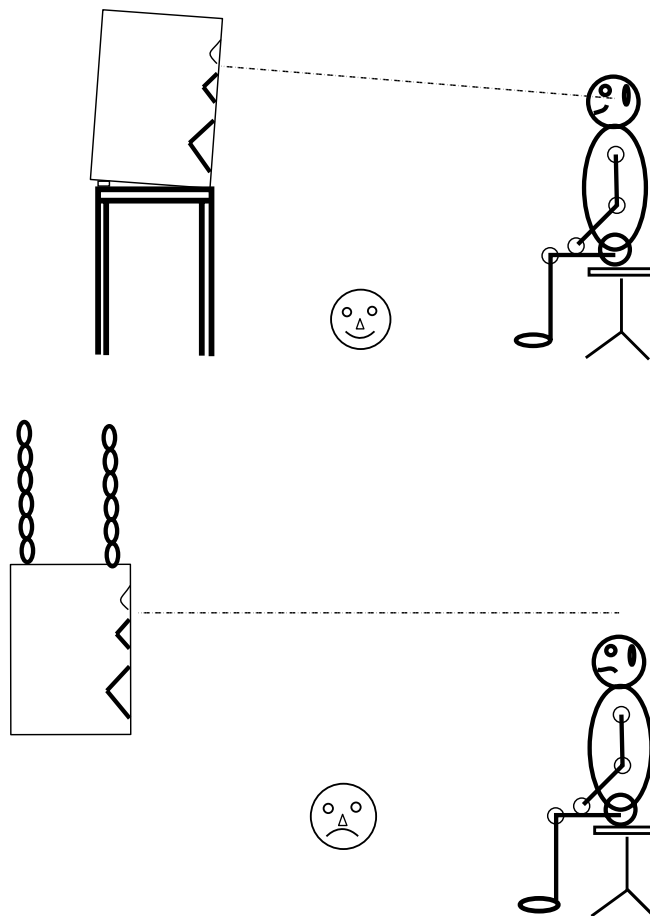
The speakers should be positioned so that the axis (an imaginary line drawn from the acoustic centre of the left and right monitor — see line drawing on page 12 of this manual) should cross between 0.5 and 1 meter behind the engineers position, for the following reasons:-

- a) To obtain the most accurate imaging, both front to rear and side to side, and to obtain as large as possible listening area so that the engineer can move and operate the console without perceiving a change in character of the monitors.
- b) To enable listening for long periods of time without suffering strain or fatigue.

Sketch showing positioning of speakers. The speakers should be between 1.9 to 2.8 meters apart and the axis of the speakers should cross between 0.5 and 1 meter behind the listening position.

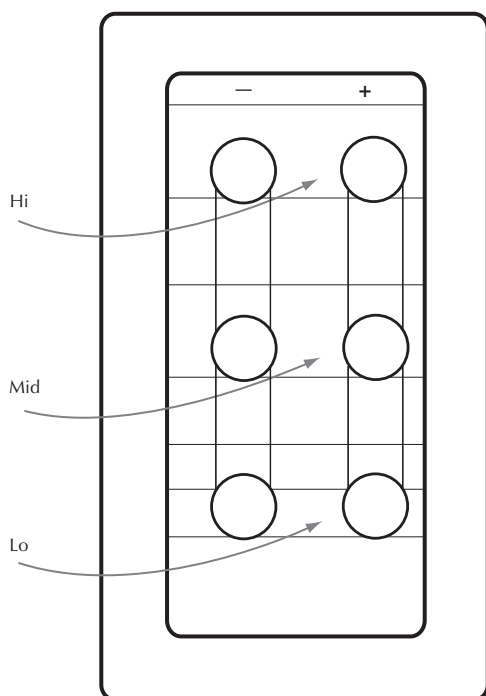


The height of mounting the speaker is equally as important. The correct height should result in the axis being at ear level when the engineer is sitting in his normal position at the console.



## 4.2 Audio Connections

The connection to the VH3208 is through a triple pair terminal tray which accepts either bare end cables or 4mm banana plugs. Each pair of terminals corresponds to individual sets of drivers and are marked accordingly with **Hi**, **Mid & Lo**.



### 4.2.1 Definitions

The terms tri-wired, bi-amped etc. can be confusing as they are not always used consistently, so the following definitions indicate the meaning as used in this manual.

**PASSIVE** One amplifier channel is used for all the monitor drive units. An internal passive crossover separates the programme frequencies and directs them to the appropriate drive units. On the VH3208 the input to each section of the internal crossover is available on separate terminal connections to facilitate a number of different wiring options.

**BI-WIRED** This is a wiring option when running the monitors in the passive mode. Here the single channel amplifier has a pair of twin cables running between its output terminals and the input terminal tray of the monitor. Generally the bass driver would be driven from one cable and the mid and high drivers together from the other cable.

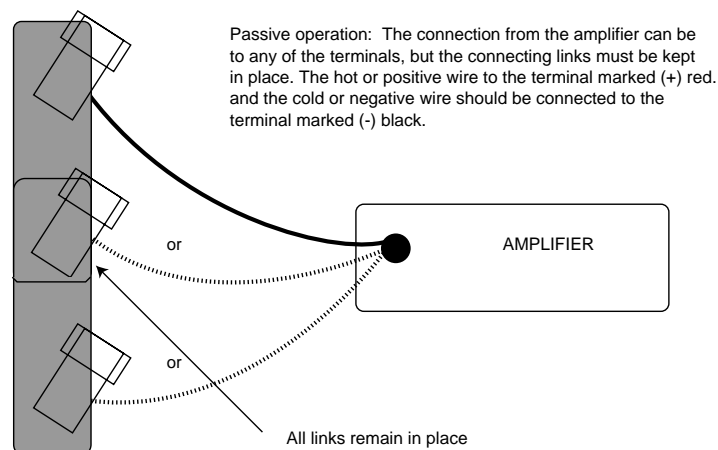
**TRI-WIRED** This is a wiring option when running the monitors in the passive mode. Here the single channel amplifier has 3 twin cables running between its output terminals and the input terminal tray of the monitor. Each set of drive units (bass, mid & high) in the monitor will be run from its own cable.

**BI-AMPED** 2 amplifier channels are used for each monitor. One amplifier channel will drive the bass, the other the mids & highs together. Both channels will use the internal passive crossover, therefore this is not the same as running the speakers **2 WAY ACTIVE** where the bass would be driven directly from the amplifier without the signal passing through the internal crossover. The mid and high would use a separate amplifier channel with the mid being driven directly from the amplifier and the high through the internal passive crossover. This method of running the monitors would require the use of an external electronic crossover. THE VH3208 CANNOT BE RUN IN THE 2 WAY ACTIVE MODE.

**TRI-AMPED** 3 amplifier channels are used for each monitor. One amplifier channel will drive the bass, another the mids and the 3rd the highs. All channels will use the internal passive crossover, therefore this is not the same as running the speakers **3 WAY ACTIVE** where each set of drive units (bass, mid & high) are driven directly from the amplifier without the signal passing through the internal crossover. This method of running the monitors would require the use of an external electronic crossover. THE VH3208 CANNOT BE RUN IN THE 3 WAY ACTIVE MODE.

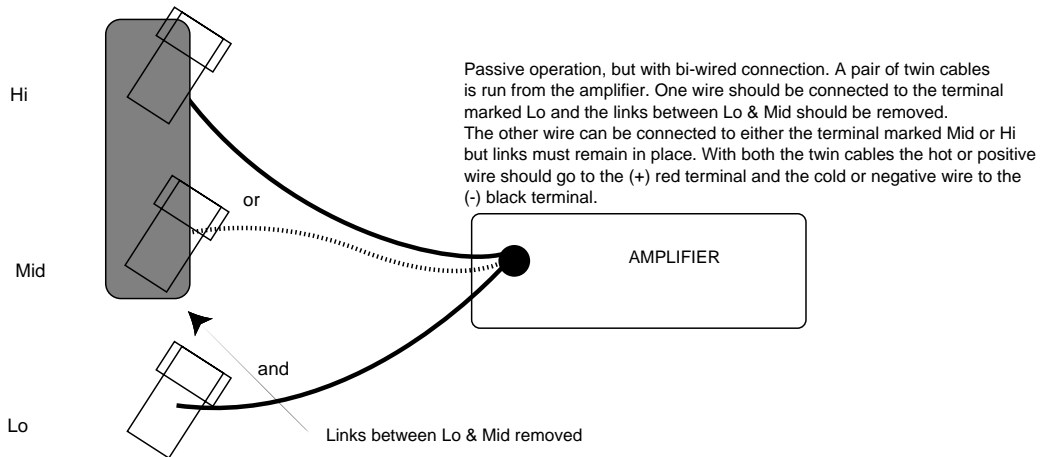
#### 4.2.2 Passive operation

These monitors can either be installed with a single twin cable, 2 twin cables (bi-wired) or 3 twin cables (tri-wired). It is recommended that the monitors are installed bi or tri-wired. This will make a small improvement in sound quality by minimising distortions produced by voltage losses associated with the interaction of signal currents flowing through the loudspeaker cables. **If the speakers are to be soffit mounted and there is any intention to convert to bi or tri-amped operation then the speakers should be bi or tri-wired to avoid the need to remove the speakers from their soffit mounting position when converting.** If installing with a single twin cable the hot or positive wire should be connected to the appropriate terminal marked (+) and having the red marking round the screw down knob. The cold or negative wire should be connected to the corresponding terminal marked (-) and having the black marking round the screw down knob. The brass connecting links between the 3

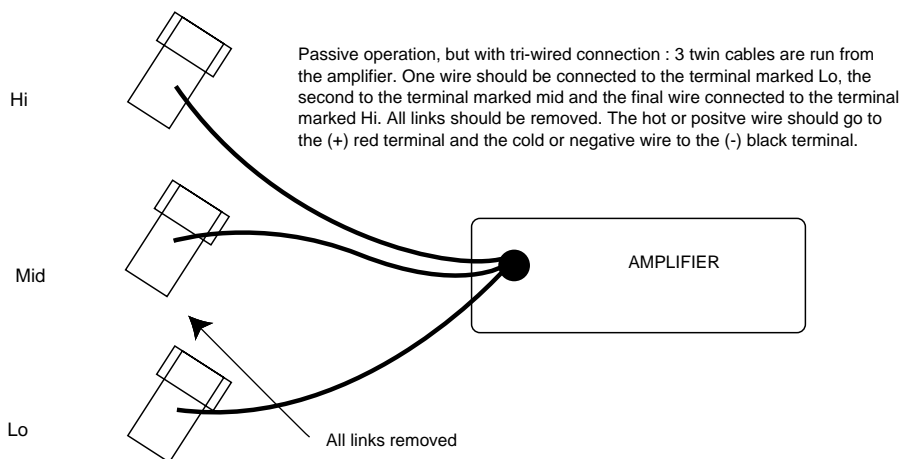


(+) terminals and those linking the 3 (-) terminals, should remain in place.

If the speakers are to be bi-wired there will be a pair of twin cables from the amplifier. One twin cable should be connected to the terminal marked Lo and the links between it and the terminals marked mid should be removed. The other cable can be connected to either the terminals marked Mid or Hi, but the links must remain in place. With both twin cables the hot or positive wire should go to the (+) terminals and the cold or negative wire to the (-) terminals.



If the speakers are to be tri-wired there will be 3 twin cables from the amplifier. The hot or positive cables should be connected to the 3 (+) terminals and the cold or negative cables to the 3 (-) terminals and all the connecting links removed.

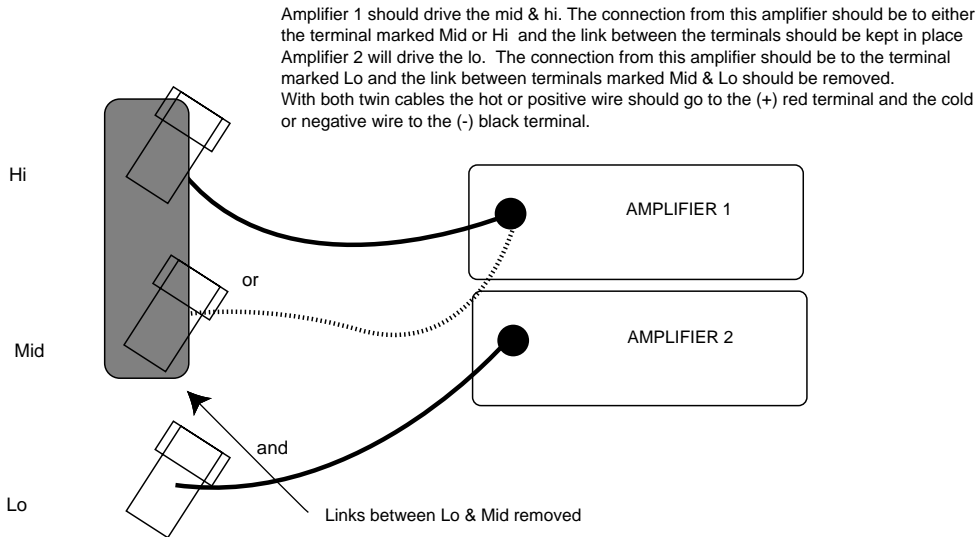


#### 4.2.3 Bi-Amped Operation

If the speakers are to be run bi-amped 2 amplifier channels will be used to drive each monitor. One amp channel should be connected to the either the terminal marked Mid or Hi and the link between these terminals kept in place. Another channel should be connected to the terminal marked Lo and the links

between the mid and lo terminals should be removed.

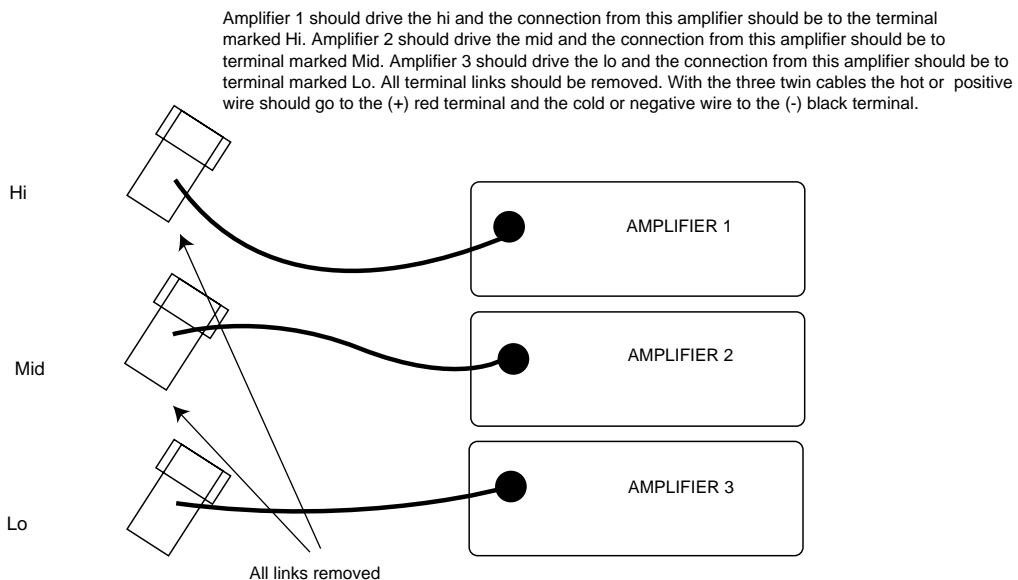
Bi-amped operation will allow the use of two lower powered amps, rather than a single high powered amp when the VH3208 is driven passively, so might be useful when upgrading from smaller monitors, or, for example, a



specialist/esoteric valve amp. is required to drive the mid & hi drivers.

#### 4.2.4 Tri-Amped Operation

If the speakers are to be run tri-amped 3 amplifier channels will be used to drive each monitor. One amp. channel should be connected to the terminal marked Hi, another channel should be connected to the terminal marked Mid and the third channel should be connected to the terminal marked Lo. All the links should be removed. The same comments regarding the use of lower powered/specialist amps as noted under bi-amped operation in the above



paragraph applies.

#### 4.2.5 Cable

When running speaker cables it is important that good quality oxygen free cable (OFC) is used. If the connection is with a single pair of cables, 4mm<sup>2</sup> speaker cable should be used, with bi/tri wired connections, 2.5mm<sup>2</sup> cable should be run.

### 5. Technical Specification

Size (w x h x d)	485 x 612 x 320mm ( 19" x 24 <sup>1</sup> / <sub>4</sub> " x 12 <sup>1</sup> / <sub>2</sub> " )
Weight	33kgs (72lbs)
Drivers	Bass cone 2 x 200mm (8") Mid Range 1 x 75mm (3") softdome High Frequency soft dome 1 x 28mm(1 <sup>1</sup> / <sub>8</sub> " )
Maximum SPL	110dB(C)
Sensitivity	92dB at 1 watt at 1 meter
Frequency Response	45Hz-20kHz ±2dB
Nominal Impedance:	8Ω
Connectors:	Triple pair gold plated binding posts for 4mm banana or bare wire allowing connection through the passive crossover to the individual sets of drivers
Crossover	Multipole network utilizing polypropylene capacitors and air cored inductors throughout
Power requirements	Amplifier rating at 8ohm between 200-700 watts RMS

This product is built to conform to the requirements for CE marking.

## 6. Guarantee

The VH3208 is guaranteed for 24 months from its date of purchase. If any part of the product is found defective due to faulty manufacture within 24 months from the date of purchase, Quested, through its authorised distribution network will effect repair or replacement, at its discretion, free of charge providing:-

- a) The fault is reported to the authorised distributor.
- b) Proof of purchase is provided.
- c) The fault is not caused by, misuse, neglect, or faulty operation by the user.
- d) The fault is not a result of fair wear & tear
- e) The equipment has not been modified in any way.
- f) The equipment has not been taken apart or tampered with in any way other than described in the service manual for the adjustment and replacement of user accessible items.

The guarantee does not cover

- a) Damage during transit
- b) Damage to diaphragms, cones and other speaker parts as a result of the over-driving of the monitors or by faulty installation or connection.
- c) Damage caused by incorrect installation or during installation caused by incorrect handling.
- d) The cost of carriage to or from the authorised repairer.

## 7. Appendix

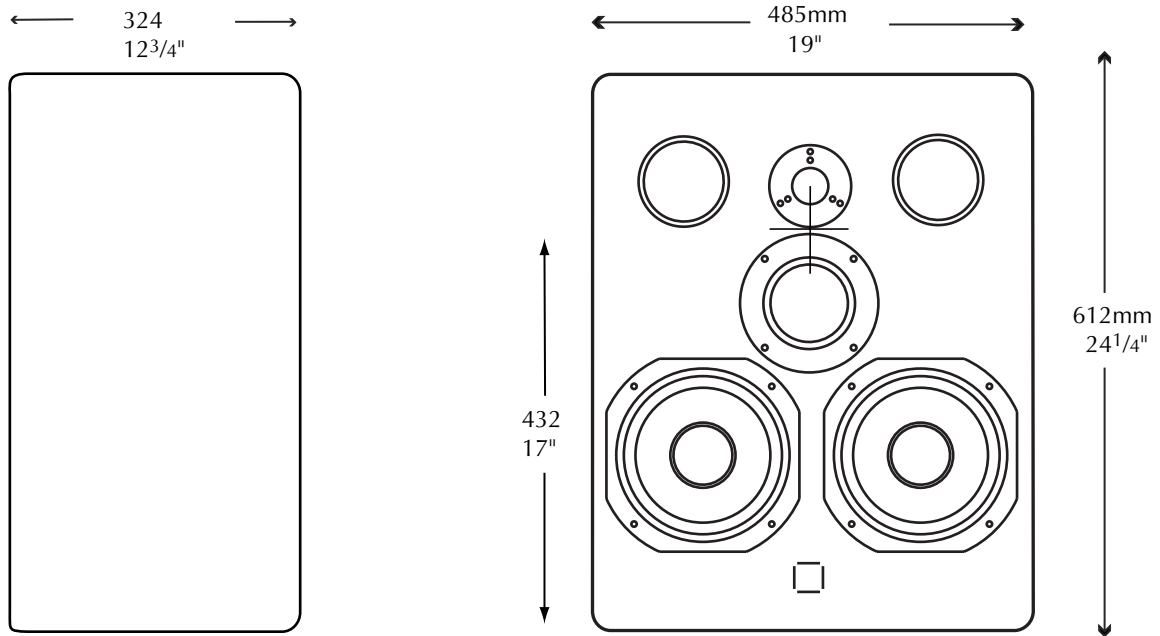
### 7.1 Accessories

<b>Accessory</b>	<b>Part Number</b>
DMS30      Shielded tweeter	Q03-0011

### 7.2 Spares

<b>Spare part Description</b>	<b>Part Number</b>
LS2207      220mm (8") Loudspeaker	Q01-0025
MD75D      75mm (3") Softdome	Q02-0040
TW30      28mm (1 1/8") soft dome	Q03-0010
RD30      28mm (1 1/8") soft dome diaphragm	Q53-0010

## 8. Line Drawing



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Acoustic Centre

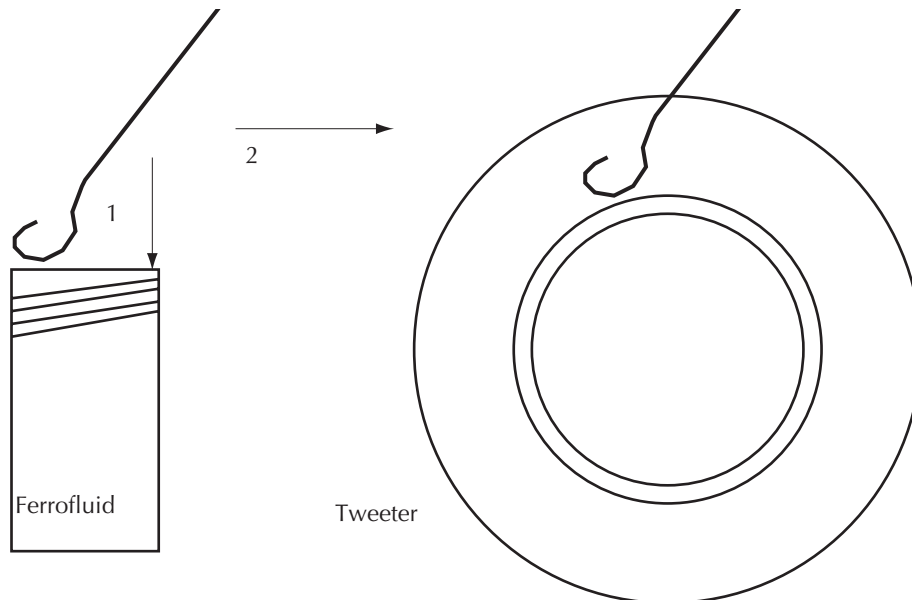
## 9 Driver replacement procedures

### 9.1 Tweeter and tweeter diaphragm

The tweeter is secured by 3 self tapping wood screws. Remove these with a posidrive no. 2 screwdriver. Take out the tweeter and disconnect the two wires, noting which colour goes to which terminal. If on removing the 3 screws that hold the tweeter there is any difficulty in removing the unit do not try to force a blade between the cabinet and tweeter, but use a small narrow bladed screwdriver in one of the screw holes to gently lever out the tweeter.

If it is necessary to replace the diaphragm

- a) Remove the 3 machine screws on the front plate of the tweeter using a 2mm hex driver.
- b) De-solder and unwind wires from the terminal tags
- c) Remove diaphragm assembly and replace with the new diaphragm. The Ferrofluid has the appearance of oil and is dark brown in colour and should cover about 1/3 of the coil. If there is less than this then additional Ferrofluid should be added. This can be obtained from your dealer/distributor or directly from Qusted. The ferrofluid reference is  
It should be noted that ferrofluid is best added as shown in the digram below. The fluid should never cover more than 1/2 the coil.
- d) Wrap the wires from the diaphragm around the corresponding tags
- e) Keep the wire slightly taught, but do not strain
- f) Re-solder the wires and re-assemble.



Dip wire in ferrofluid, a small amount will be retained on the wire hold wire over the tweeter gap and the magnet will attract the fluid from the wire into the gap. Do this 3 or 4 times in different position on the tweeter, then check by inserting the new diaphragm to see the amount of fluid in the tweeter.

## 9.2 Mid range driver

No recone kit is available for the mid range so if a fault develops the unit will need to be replaced.

Remove the 4 self tapping wood screws using a posidrive no.2 screwdriver. Take out the unit and disconnect the two wires, noting which colour goes to which terminal. If on removing the 4 screws that hold the mid range there is any difficulty in removing the unit do not try to force a blade between the cabinet and mid range, but use a small narrow bladed screwdriver in one of the screw holes to gently lever out the unit. Connect the new mid range and re assemble into the cabinet. Do not ovetighten the 4 screws.

## 9.3 Bass driver and bass driver recone.

The bass drivers are held in by four M5 machine screws. Remove the screws in the order shown below using a 4mm hex driver. The drivers are heavy so hold the driver by the frame when removing the last screw. Remove the bass driver, using a screwdriver in one of the screw holes to gently lever out the driver if there is any difficulty in removing the unit. Do not force a blade between the cabinet and driver. Disconnect the two

wires, noting which colour goes to which terminal. Replace with the new driver and re-assemble in the reverse order.

A recone unit is available for the VH3208 bass driver. Instruction for reconing is included with the recone kit. However, unless you are familiar with the practise of reconing it is better to have the speaker reconed by someone who is experienced.

