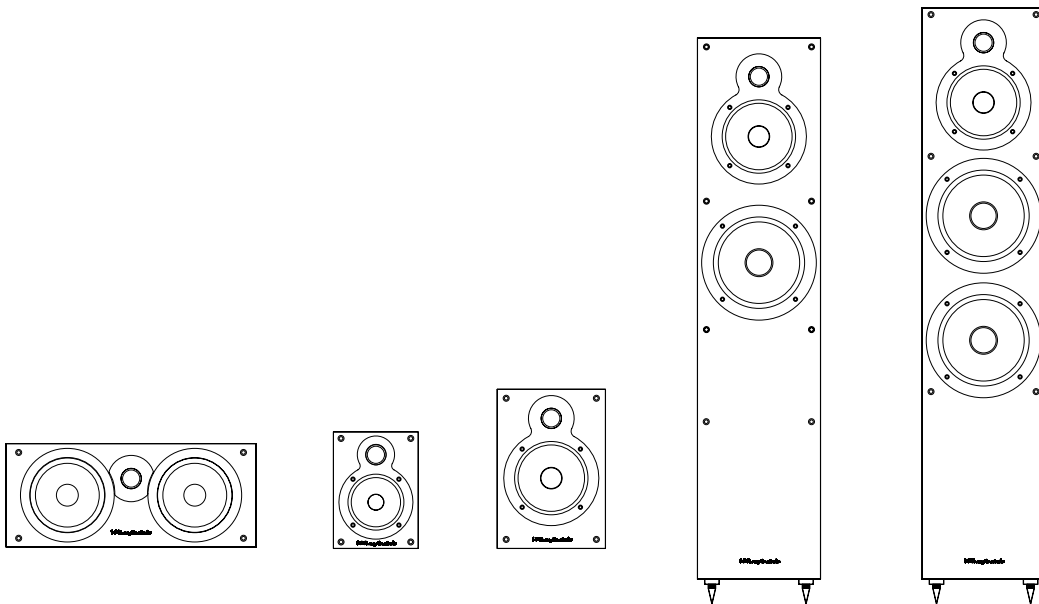


CRYSTAL 4 SERIES

Crystal-4.1
Crystal-4.2
Crystal-4.3
Crystal-4.4
Crystal-4.C



Wharfedale

User's Manual

IMPORTANT SAFETY INFORMATION



BEFORE INSTALLING THIS PRODUCT READ ALL THESE INSTRUCTIONS!

This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

Read these instructions. Keep these instructions. Heed all warnings. Follow all instructions.

Before making any connections, switch all the units in your system off at the mains.

Set the volume control at minimum when you switch on your system or change sources and turn the level up gradually.

DO NOT use your amplifier at full volume.

Ensure that all loudspeakers in the system are correctly wired.

DO NOT subject your loudspeakers to excessive cold, heat, humidity or sunlight.

Loudspeakers should not be placed directly facing other hi-fi units, or share the same shelf or cabinet.

DO NOT place heavy objects on top of loudspeakers.

Some manufacturers forbid the placing of objects on top of their TV sets. Check your TV handbook before installing the speaker directly on your TV set. Consult your TV dealer if you are in any doubt.

DO NOT connect speaker terminals to the mains supply.

DO NOT dismantle the loudspeaker. There are no user serviceable parts inside it and you will void the warranty.

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in anyway, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this device.

Unpacking

After taking out the top packing piece, lift the loudspeakers from the carton. Do NOT lift a loudspeaker out using the protective bad. After unpacking remove all the protective bags from the loudspeakers and store or dispose of them safely.

The Crystal-4.3 and Crystal-4.4 are heavy. If you are unsure of your ability to unpack and manoeuvre them safely, get someone to help you.

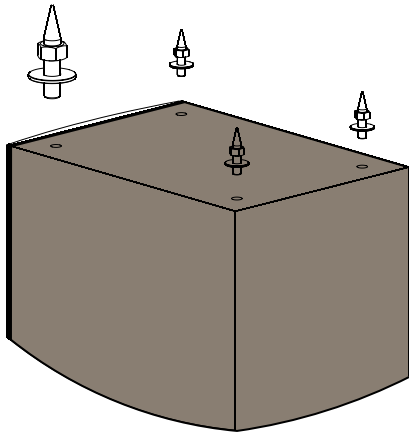
Check all items after unpacking. If any item is missing or damaged, immediately contact your Wharfedale dealer. Retain the packaging. If you dispose of the packing, follow all recycling regulations in your area.

Preparing The Crystal-4.3 and Crystal-4.4 Loudspeakers

Attaching The Spikes

Place a soft cloth on the floor to protect the speaker. Invert the loudspeaker and place it on the cloth.

Thread a locking nut two-thirds of the way up the spike. Thread each spike assembly into a spike mount. Tighten finger tight so that spike is secure but not locked in place.



Levelling The Loudspeaker

Invert the loudspeaker and place it carefully on the floor. If the floor is not perfectly level you will find that one spike is off the ground. Starting with this spike, unscrew it so that it touches the floor. Move the other spikes in and out so until the speaker is level front and back and sideways. Now tighten the nuts to lock the spikes firmly in position.

Spike Seats: A set of spike seats is provided for sensitive floors. Place a seat under each spike before you level the speakers.

Caution: Spikes Are Sharp

Make sure that there are no wires or hidden obstacles that could be damaged by the spikes in the immediate operational area of the speakers. NEVER drag a loudspeaker on its spikes. Always lift it. If the item is heavy get assistance.

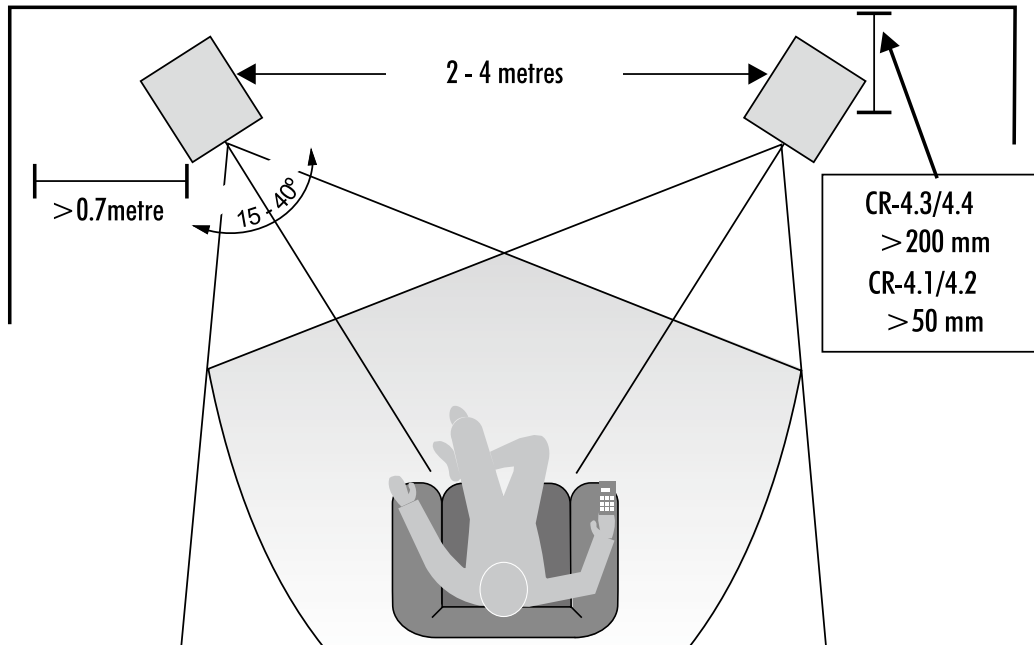
Positioning Stereo Loudspeakers

The Crystal-4.3 and Crystal-4.4 are floor standing. We suggest they are positioned at least 200mm from the rear walls and 700mm from the side walls, facing slightly inwards. The Crystal-4.1 and Crystal-4.2 may be stand or wall mounted or placed on a rigid shelf.

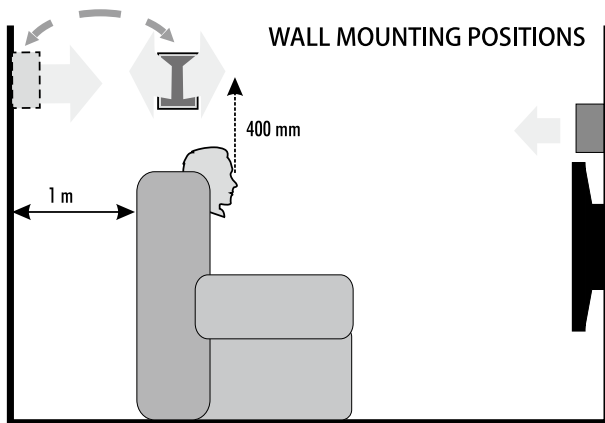
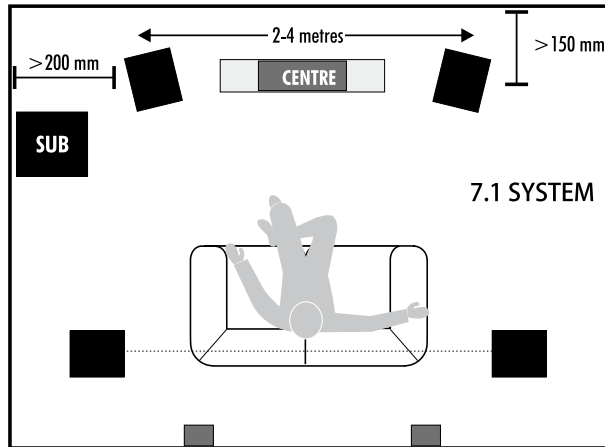
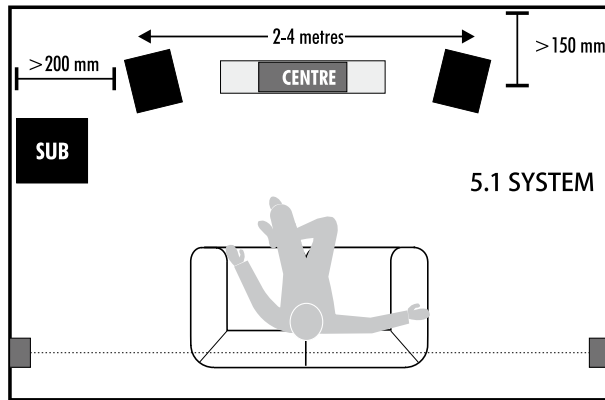
The bass extension will improve if smaller speakers are operated closer to the rear walls. If the loudspeakers are placed too close to the walls the bass will increase but maybe boomy and indistinct. If the loudspeakers are placed away from the

walls, the inward angle maybe increased by up to 40%, but this may restrict the width of the optimum listening position.

A rule of thumb is that the listener should be as far from the loudspeakers as they are from each other. The speakers should be ideally positioned so that the treble units are roughly at ear level to a seated listener. As personal taste plays a large role, experiment with different configurations and play a wide range of programmes before finalising the position of your speakers.



Positioning Home Cinema Loudspeakers



5.1 Positioning

Place the front speakers as shown. Front loudspeakers should be placed away from the walls for best results. Angling the speakers inward slightly will improve stereo images but too extreme an angle will impair the movie sound.

All the speakers with the exception of the Crystal-4.C must be placed at least 450mm from a CRT TV. Flat panels are unaffected.

The Crystal-4.C centre speaker can be placed above or below the TV screen.

Subwoofer room positioning is not critical but we recommend that it is placed in front of the listening seat. Never operate the subwoofer within 450mm of a conventional TV screen.

The surround speakers should be placed above and behind the listening seat. They may be mounted on the side walls or on the rear walls but always behind a listener. Do not operate them within 450mm of a conventional CRT TV.

If the distance between the side walls is too great, you could use a second pair of stand mounted or floor standing loudspeakers, as the surround loudspeakers placed as shown in the drawing opposite.

7.1 Positioning

If you are using a 7.1 system, the back loudspeakers must be at least 1 metre behind the listening seat.

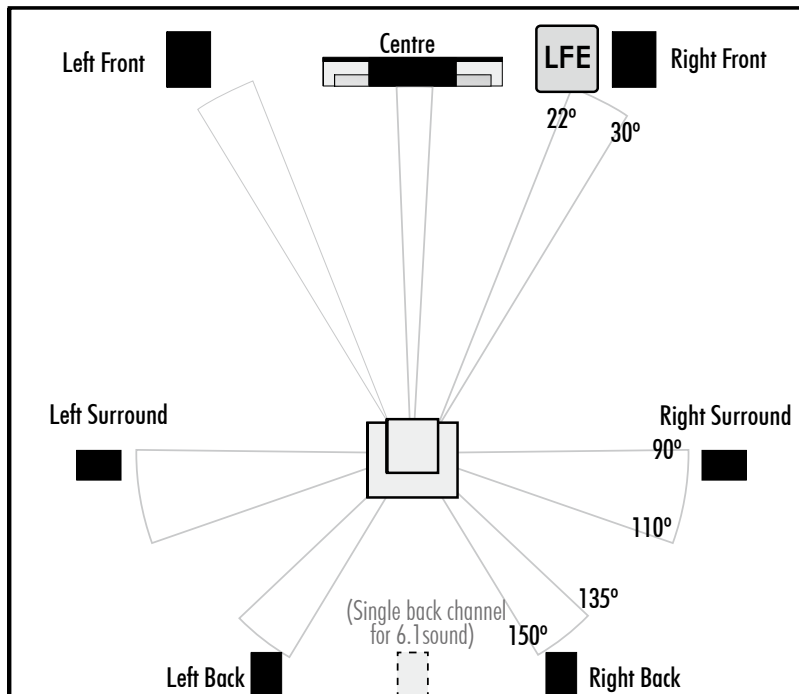
Wall Monting Positions

If you are wall mounting the centre and effects loudspeakers we recommend that they be mounted as shown.

The Crystal-4.1 has integral speaker mounts. To wall mount the Crystal-4.C we recommend that you consult your dealer to advise you on a suitable wall bracket.

Wall mounting the centre loudspeaker below the screen is not recommended unless the screen is mounted significantly above eye level. Consult your TV user guide for preferred placement options.

Doby Labs Recommended 7.1 Placement



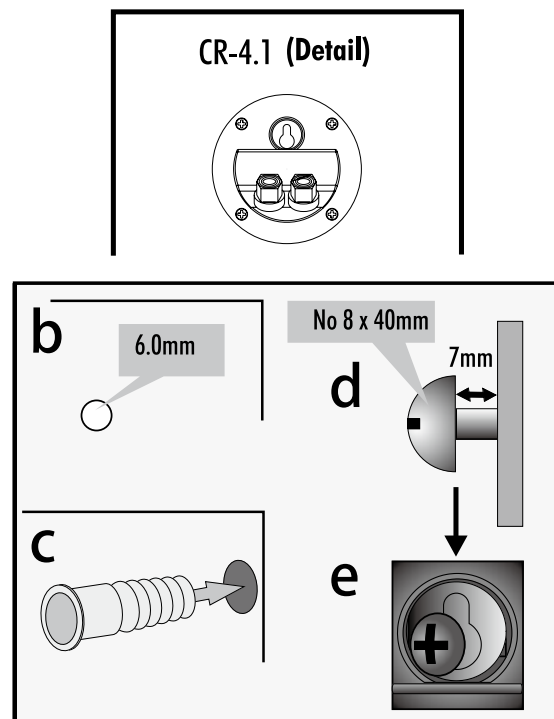
Wall Mounting The Crystal-4.1 Loudspeakers

The crossover terminal panel of the Crystal-4.1 loudspeaker is provided with an integral keyhole slot for wall mounting. Wall mounting should be carried out by licensed sound contractors or technicians with appropriate qualifications and experience. All installations and wiring should comply with the standards laid down by the competent authority in the country and place of installation. Before you attempt wall or ceiling mounting, ensure the surface is stable and strong enough to support the weight of the speaker and mounting hardware.

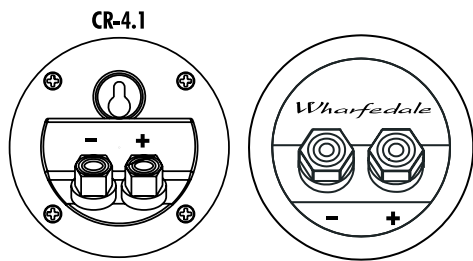
You will need 1 No.8 screw and matching wall plug to attach each loudspeaker to the wall. These are the responsibility of the installer who should supply suitable fixings for this purpose.

Drill one 6mm hole in the wall at a suitable height off the floor. Fix a suitable No 8 round head screw firmly into each hole using appropriate wall plugs. Leave a stub of 7mm protruding from the wall. Align the keyhole slot in the crossover panel over the screw head and carefully lower the unit onto the screw.

Remove the loudspeakers from the wall ready for connection. After connection they can be re-installed on the wall.

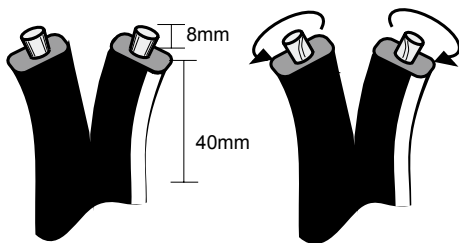


Connecting Your Loudspeakers



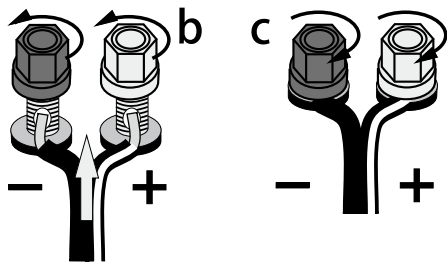
Terminal Panels

All the loudspeakers are connected to the amplifier via a twin terminal connecting panel. The positive terminal is located at the right of the panel and is coded red, the negative terminal is coded black.



Cable Preparation:

Prepare a suitable length of loudspeaker cable for each unit. Split the twin cores to a depth of about 40mm. Carefully strip the insulation from each end, leaving about 8mm of bare wire. If the cable is stranded, lightly twist together any loose strands.



Threading Cable

Unscrew a terminal. Thread the bared end of each cable through the hole in the bottom of the terminal post. Ensure that there are no loose strands which may touch adjacent terminals. Retighten the terminal securely.

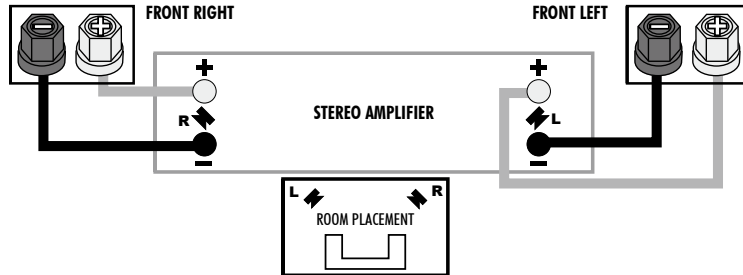
Amplifier – Speaker Connections:

Audio cable is polarised, with two cores of different colours, or often a coloured tracer or identification rib. We suggest that you connect the coloured / striped wire to the red, positive terminals of your AV amplifier. This will ensure that all the loudspeakers are connected the correct way round and avoid set-up problems.

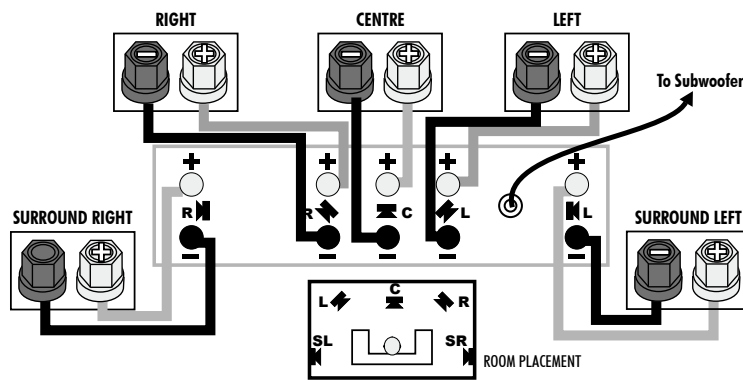
Connect each loudspeaker to the correct channel of your amplifier or AV processor taking care to connect the red (+) positive terminal of the speaker to the red, positive (+) terminal of the speaker output terminal of the amplifier and similarly with the black, negative (-) terminal. Use the connection diagrams on the next page to help you.

Connecting Your Loudspeakers

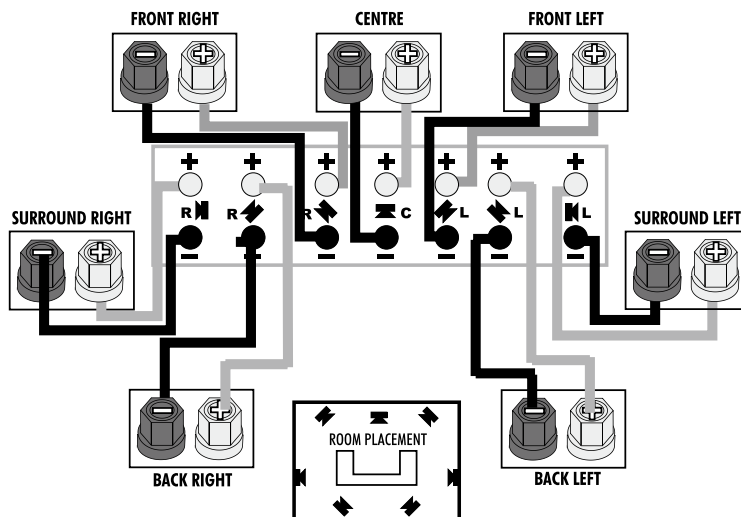
Stereo Connection



5 Channel Connection



7 Channel Connection



Setting Up A Stereo System

Ensure that the listening seat is central to the loudspeakers.

Play some music with which you are familiar. Adjust the speakers for the optimum performance. You will find that a few degrees more or less 'toe in' can effect the sound dramatically.

The sound should be well balanced with a firm bass. If the sound lacks definition or the bass is indistinct, the

Setting Up An AV System



Please read the relevant sections of your AV amplifier manual and familiarise yourself with the various issues. If you are unsure, consult your dealer for help.

Most digital AV processors require you to specify the size of speakers in all operational channels. These are usually 'Large' or 'Small'. Set all the bookshelf speakers to 'Small'. This will direct all the bass in the system to the subwoofer for clean, deep and louder bass. The floorstanding loudspeakers should be set to 'Large'. It is normal for a centre and effects speakers to be set to 'Small'. Set the 'Subwoofer' option in the processor to 'On'. If there is no subwoofer in the system set all the speakers to 'Large' and set the subwoofer to 'Off'.

When the loudspeaker settings are finalised, put the AV amplifier into its 'Test' mode (see your processor instruction) and adjust the levels until all channels are equally loud.

Troubleshooting

IF YOUR LOUDSPEAKERS ARE NOT WORKING SATISFACTORILY, PLEASE WORK THROUGH THE TABLE BELOW BEFORE CONTACTING YOUR DEALER FOR ASSISTANCE. BEFORE INVESTIGATING A PROBLEM, SWITCH OFF THE SYSTEM AT THE MAINS

Symptom	Possible Cause
No Sound	System not switched on; Speaker cables shorting terminals out; wrong source selected
Sound lacks bass content Bass reproduction is indistinct	Front loudspeakers out of phase. Check all system connections and rectify. Subwoofer not switched on; Subwoofer phase incorrect; Subwoofer crossover control too low
Excessive bass distortion at low volumes	Subwoofer level set too high; LFE level set too high; Subwoofer incorrectly wired
Excessive or distorted bass at high levels	System level set too high; Bass control set too high
Distortion / rattling at high levels	System level too high; Objects too close or on top of speakers
Indistinct Sound; Poor localisation of effects. Poor localisation of dialogue.	One or more loudspeakers is out of phase. Check all system connections and rectify. (Read the manual for correct connection procedure)

Further Information

Care and Maintenance

If you play the speakers with the grilles off exercise great care. NEVER touch drive units which are easily damaged. The loudspeaker cabinets can be cleaned with a damp cloth or with a spray furniture polish and a soft cloth. Apply the spray sparingly to the cloth and then polish the cabinet. Never apply spray directly to the cabinet.

Guarantee & Service

In the unlikely event that your unit develops a fault you should return it to the Wharfedale dealer using the original packing to ensure safe shipping.

The terms of your guarantee may vary in different countries but in all cases the guarantee excludes.

All damage caused through accident, misuse, wear and tear, neglect, incorrect installation, adjustment or repair by unauthorised personnel is not covered by your warranty.

Wharfedale will not be liable for any consequential damage, loss or injury, arising from or in conjunction with this equipment.

Authorised Service Centres

UK

IAG UK LTD.

IAG House 13/14 Glebe Road, Huntingdon,
Cambridgeshire, PE29 7DL, England

Tel: +44 (0)1480 447700

ASIA

IAG Group LTD.

Sanecore Industrial Park, Jiuwei, Xixiang, Shenzhen
China

Tel: +86 755 27483535

Additionally, Wharfedale retailers and global distributors will be able to assist you on finding authorised service centres worldwide. To find your Wharfedale distributor visit www.wharfedale.co.uk

Wharfedale has a policy of continuous product development and reserves the right to change specification without notice.

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Specifications

Model	Crystal-4.1	Crystal-4.2	Crystal-4.3	Crystal-4.4
General description	Bookshelf Speaker	Bookshelf Speaker	Floorstanding Speaker	Floorstanding Speaker
Enclosure type	Bass Reflex	Bass Reflex	Bass Reflex	Bass Reflex
Transducer complement	2-way	2-way	3-way	3-way
Bass driver	100mm Woven Kevlar Cone	125mm Woven Kevlar Cone	165mm Polypropylene Cone	165mm Polypropylene Cone x2
Midrange driver			125mm Woven Kevlar Cone	125mm Woven Kevlar Cone
Treble driver	25mm Soft Dome	25mm Soft Dome	25mm Soft Dome	25mm Soft Dome
AV shield	No	No	No	No
Sensitivity (2.83V @ 1m)	86dB	88dB	88dB	90dB
Recommended amplifier power	20-60W	20-100W	25-120W	25-150W
Peak SPL	95dB	96dB	96dB	102dB
Nominal impedance	8Ω Compatible	8Ω Compatible	8Ω Compatible	8Ω Compatible
Minimum impedance	4.3Ω	4.4Ω	3.7Ω	3.5Ω
Frequency response (+/-3dB)	75Hz - 20kHz	60Hz - 20kHz	50Hz - 20kHz	40Hz - 20kHz
Bass extension (-6dB)	70Hz	55Hz	45Hz	35Hz
Crossover frequency	3.4kHz	2.6kHz	500Hz & 2kHz	460Hz & 2.7kHz
Cabinet Volume (in litres)	2.3L	6.9L	7.5L&21L	7.5L&23L
Dimensions (mm)				
Height (on plinth)	194mm	265mm	(900+22)mm	(950+22)mm
Width	141mm	180mm	205mm	205mm
Depth (with grille&terminal)	(147+10)mm	(212+10)mm	(245+10)mm	(245+10)mm
Carton size	382 x 225 x 280mm	475 x 300 x 385mm	1020 x 360 x 315mm	1070 x 360 x 315mm
Net weight	2kg each	4.2kg each	14.5kg each	15kg each
Gross weight	4.8kg/ctn	9.6kg/ctn	16.2kg/ctn	17kg/ctn
Finish	Black / Walnut / White	Black / Walnut / White	Black / Walnut / White	Black / Walnut / White

Model	Crystal-4.C
General description	Centre Speaker
Enclosure type	Bass Reflex
Transducer complement	2-way
Bass driver	125mm Woven Kevlar Cone x2
Midrange driver	
Treble driver	25mm Soft Dome
AV shield	Yes
Sensitivity (2.83V @ 1m)	89dB
Recommended amplifier power	25-100W
Peak SPL	95dB
Nominal impedance	8Ω Compatible
Minimum impedance	4.2Ω
Frequency response (+/-3dB)	70Hz - 20kHz
Bass extension (-6dB)	65Hz
Crossover frequency	2.4kHz
Cabinet Volume (in litres)	8.2L
Dimensions (mm)	
Height (on plinth)	172mm
Width	415mm
Depth (with grille&terminal)	(192+10)mm
Carton size	495 x 280 x 260mm
Net weight	6.8kg each
Gross weight	8kg/ctn
Finish	Black / Walnut / White

Wharfedale

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