DIAMOND 9

Wharfedale

WHAT HI-FI? SOUND AND VISION

★★★★★

"We found it difficult to believe this level of performance existed at this price - but hearing is believing" - *Diamond 9.1, December 2004*

Introduction

Diamond 9 offers new standards in performance for Home Cinema and Hi-Fi musical reproduction, the result of over seventy years continuous experience at the cutting edge of loudspeaker design.

Although Diamond has for two decades been the audiophile's favourite compact loudspeaker range, the new Diamond 9 series introduces a level of performance until now only available from high-end loudspeakers.

A wealth of experience, the application of advanced technologies and specially developed materials have been crafted into a range that is as versatile as it is competent.

A wide range of product options allows a system to be tailored to your exact requirements with complete tonal matching and the same articulate delivery from each model.

The challenging demands of today's Home Cinema sound tracks have been fundamental to the design criteria for the range. The wide choice of front speakers, surround speakers, centre channels and subwoofers have been developed in consultation with film and recording studio professionals throughout the world to offer peerless performance in both cinema and stereo system combinations.

Neutrality; wide dispersion; balanced and smooth frequency response; fast transient and dynamic capability; with low distortion; and a natural mid-range with precision imaging are all attributes sought after in audiophile loudspeaker design.

The Diamond 9 series has achieved success in each of these fields without compromise to each other - a rare vintage that will give listening pleasure for many years.

Gold-plated and screened bi-wire terminals on Diamond 9 are not purely cosmetic. A chain is only as strong as its weakest link and often this is the connection between loudspeaker and the cable that carries the signal.

Gold, although expensive, is one of the finest electrical conductors. Its also quite soft so can grip a cable or connector effectively.

The four connectors in total, two red and two black, allow the high frequency and bass drivers to be connected separately. Although a gold-plated bridge connector is supplied if you really wish to use a standard cable, even when using an amplifier with one set of outputs, it is worth using bi-wire cable. Linking the cable at the amplifier end instead of the loudspeaker end will reduce intermodulation to give a more open mid-range.

Finally the connection is screened to prevent arcing that can be caused by loose strands of cable and reduce interference

The pure dynamic ability, the uncoloured even response of Diamond 9, combined with total tonal matching and exceptionally wide dispersion produce a sound field that engages the listener completely.

Home Cinema

The wide range of Diamond products available now extends beyond two channel and basic surround sound, with a host of new models and options catering specifically for the demands of Home Cinema use. Diamond 9 in any of its Home Cinema configurations offers a revelation in sound quality to those customers who have, until Diamond 9, not realised the significant sonic advantages of full size loudspeaker components. Many listeners have become too accustomed to the significant limitations of small sub/sat systems where much of the crucial frequency range is missed.

The production of motion picture sound tracks is achieved in hi-tech studios with high output, full range systems. A system, such as Diamond 9, which shares these specific attributes is required to reproduce a soundtrack to anything like the intended standard. The dynamic ability, the uncoloured response of Diamond 9, combined with speaker to speaker tonal matching and an exceptionally wide dispersion, produce a sound field that engages the listener completely. Diamond 9 reproduces with startling accuracy, the experience that was originally intended by the sound engineers.

Through our relationships with the major film studios and recording artists world-wide, we have developed a range of systems that are equally adept with both music and film soundtracks. They replicate the process and quality used in the recording studio, so you can hear exactly what was intended, yet they remain a reference for two channel audiophile reproduction.

Diamond 9 reproduces with startling accuracy, the experience that was originally intended by the sound engineers.

WHAT HI-FI? SOUND AND VISION ★★★★★

"You should buy the Wharfedales if you have a budget stereo system that doesn't have these at the front end. Really, They're that good - put them at the top of your audition list, now!"

Diamond 9.1, Product of the Year, Awards issue

Stereo Reproduction

Since its creation in 1981, Diamond has enjoyed a formidable reputation within the field of two-channel stereo reproduction. Regarded by journalists around the world as the real entry point to hi-fidelity sound reproduction, this has been reinforced by numerous awards and commendations.

This reputation is based upon a proven track record - a thorough understanding of the principles of good hi-fi reproduction coupled with a completely holistic approach to design.

Each component is designed as part of a whole, without a single 'off-the-shelf' part. Every part interacts simply and effectively with the rest, to produce a sound that is detailed, refined and supremely natural.

Diamond 9 further reinforces this ideal. Designed using the finest materials and technology in its class it, yet again, redefines the standard of reproduction available. Whilst retaining many of the core features that made Diamond 8 successful, Diamond 9 introduces a raft of new features including:

- a strong, inert, low resonance, curved and braced cabinet design
- a special alloy, chassis design for low internal reflection
- bespoke aluminium alloy tweeter surround, terminal panel and ports
- low reflection 'MSBR' cone surround
- 'Rare-Earth' high-power magnet assemblies
- Low velocity port tubes
- Low resistance rear terminal design

Subwoofers

A good subwoofer is the keystone of any good Home Cinema. It can be used to reproduce the LFE (Low Frequency Effects) Channel, denoted by the '.1' of '5.1'. This channel, although dedicated to bass frequencies is an essential part of the overall soundtrack and requires a specialist loudspeaker to realise its potential.

Correctly set up, a good subwoofer can transform a system. It adds scale, authority and presence. It brings movie soundtracks to life and will transform your listening experience.

The Diamond 9 series features a choice of two specially developed subwoofers, with quite different designs and features.

The smaller SW150 is a cuboid, forward firing design, ported for exceptional efficiency. A built-in 150w RMS amplifier can be filtered at 6 selectable levels, from 35Hz to 85Hz in 10Hz steps. Filtering is second order with a slope of 12dB/octave. Easily customisable to integrate perfectly with your Diamond 9 system, this model is the perfect solution for all but the most demanding applications.

The larger of the two subwoofers, the SW250 is a curved cabinet design with a sealed enclosure. This design is ultimately capable of quite astonishing results, but due to the sealed nature, is less efficient and requires a more powerful 250WRMS internal amplifier. This model is also supplied with a full function remote control and allows up to four pre-sets to store settings for volume, phase, and crossover frequency. Filtering on this model is fourth order, 24dB/octave. This model is designed for use where audiophile standards of music reproduction are required.

Both models have high level inputs to enable use with traditional stereo systems, and line level inputs for use with Home Cinema amplifiers.

Diamond 9 takes the art of loudspeaker design to new levels. Even internally, every detail has been addressed.

Wharfedale's designers are the finest in their fields. And because we make every single part of every loudspeaker in our own facilities, we can control the quality of everything used.

The art of sound

Designing a good loudspeaker is an artform. It requires careful measurement; an understanding of acoustic physics; and, these days, some extremely powerful computers - but that's not enough. It requires the experience to know how to put everything together in harmony - to create a sound that is pure, natural and accurate.

Modern materials make it easier than ever to predict the physical behaviour when the electrical impulses are converted into the kinetic energy of the drivers.

We're beginning to understand how the brain translates the air-particle movements into what we recognise as sound.

So if everything is so predictable, why are not all loudspeakers perfect?

The very nature of loudspeaker cones means it's a design balancing act. Make them too stiff and they'll ring like a bell. If you don't make them stiff enough - they'll distort. If you make them too heavy - they'll be slow and lack detail and so on.

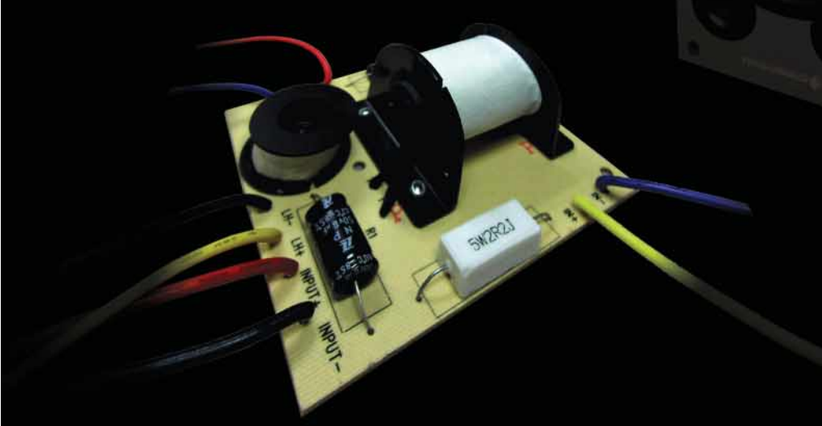
Like a fine violin, the skill is in knowing how each part interacts with the whole. It's no good taking parts from one supplier, a different set of parts from another and then trying to correct the inevitable miss-matches with complex electrical crossovers which in turn introduce their own problems.

Wharfedale's designers are the finest in their fields. And because we make every single part of every loudspeaker in our own facilities, we can control the quality of everything used.

A STRONGER, LOW RESONANCE CURVED AND BRACED CABINET DESIGN

The curved design of the cabinet adds significant strength to Diamond 9. This produces a more transparent, dynamic sound. The addition of lateral and transverse bracing makes the cabinet stronger still, reducing colouration to negligible levels.

Standing waves from the rear of the cone dissipate quickly from the curved sides, leaving just clean, taught bass.



A SIMPLE, HIGH QUALITY CROSSOVER

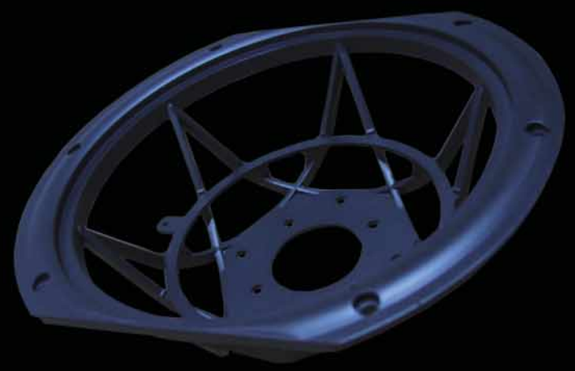
Because every driver, magnet and component in Diamond 9 is manufactured in-house, we can design our products with total synergy.

This enables us to use the simplest possible crossover and hence eliminate the negative effects that are introduced where driver correction is needed.

Diamond 9 has the most natural mid-range of any loudspeaker in its class.

A SPECIAL ALLOY, CHASSIS DESIGN FOR LOW INTERNAL REFLECTION

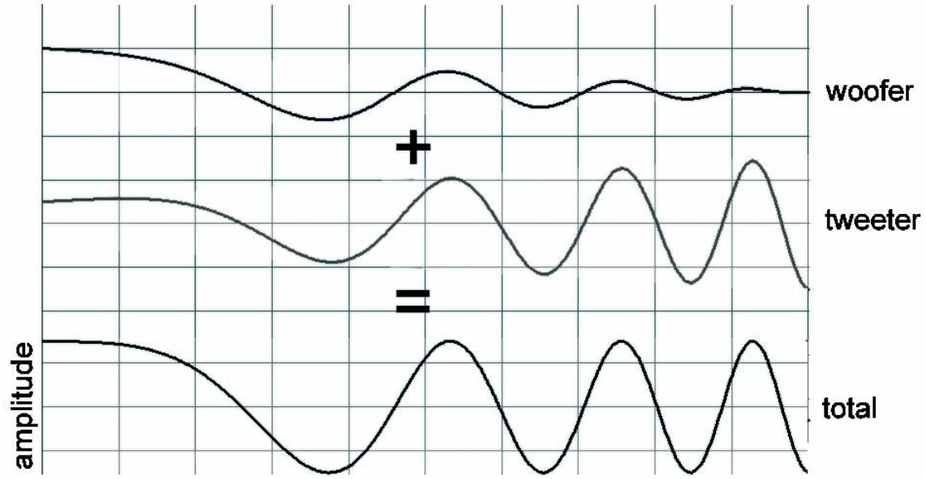
The main weakness with most chassis designs is their size and profile. As the cone moves, pressure waves are reflected straight back from the chassis towards the cone like an echo. This can adversely affect timing and creates distortion. Our completely new chassis design is not only incredibly strong, it has very little to obstruct these rear moving pressure waves. As the air moves more freely through the chassis, timing is improved and distortion is reduced.



What makes Diamonds Sparkle?

DYNAMIC ABILITY
(the ability to move from quiet to loud clearly and with realistic volumes) – Diamond 9 uses extremely strong woven KEVLAR bass/mid range drivers which, due to a high strength-to-weight ratio, can be pushed hard without distorting. Diamond 9 cones are coupled to their chassis with MSBR surrounds that allow a long, linear excursion; damp wave reflections from the speaker edge; and isolate vibrations from the cabinet.

EVEN FREQUENCY RESPONSE
Diamond 9 products are all engineered to produce the same volume levels at every frequency. This means that with movies and especially with music, you can hear everything that was recorded. Some systems, especially small or 'sub-sat' systems, produce an artificially strong bass and treble response with a gap in the middle - or too much emphasis on the subwoofer. Although these small systems can sound instantly 'impressive' in a demonstration environment, extended listening is very tiring and when listening to music, a lack of mid-range means that an unnatural balance is heard in a crucial part of the music spectrum.
Diamond 9 series speakers are designed to maximise the frequency bandwidth and dynamic range. However, to produce a truly great speaker, the mid-range needs to be exceptionally smooth. This is the area where the human ear is at its most sensitive and any problems are easily detectable by the listener. It's also the area where the sound moves from being produced by the 'woofer' (bass sounds) to the 'tweeter' (higher frequencies). In the frequency region where this changeover occurs, both the tweeter and the woofer combine to produce the total sound. It's important to have both drivers moving together (in phase). If one is pushing and the other is pulling, then the interference between the two can produce unpleasant results.
The mark of an audiophile quality loudspeaker is to manage this move between tweeter and woofer such that the transition is seamless. Most loudspeakers, even extremely expensive models, are manufactured from parts bought from different companies and this means correcting frequency disparities with over-complicated crossovers which, in-turn, cause these phase problems. Because each part of every loudspeaker we make is manufactured completely in-house, we can tailor our drive units and cabinets to the desired result and thus do not need to use over-complicated 'crossover networks' (the electronics that choose whether to send the signal to tweeter or woofer). This gives Diamond 9 a silky smooth mid-range, and a real touch of class.



The aim of using a simple crossover is to maintain the phase of the music signal as it transfers from woofer to tweeter. The sum of their outputs should remain a constant throughout the transition.

TONAL MATCHING

In any Home Cinema system, complete tonal matching between all of the loudspeakers is essential. Because space in most rooms is limited, it may not be possible to use the exact same model of loudspeaker for all of the major channels. This complicates things because although the different channels of sound on a movie soundtrack may carry different types of material (the centre channel loudspeaker, for example, is predominantly used for speech; the surround speakers for reverb and special effects), modern DVD soundtracks tend to mix a full range of sound and music into every channel, thus for a good standard of reproduction, a wide frequency range capability is required for every speaker. It is necessary to engineer different types of loudspeaker for each of these purposes, yet to ensure that they sound essentially the same within their operating range.

Diamond 9 series achieves this through using common materials and components throughout the range and ensuring factors like speaker directivity and crossover frequency are chosen to assure that component layout has little impact on the tone and coverage of each speaker. This is only possible by engineering drive units, cabinets and crossovers specifically for each and every model within the range.

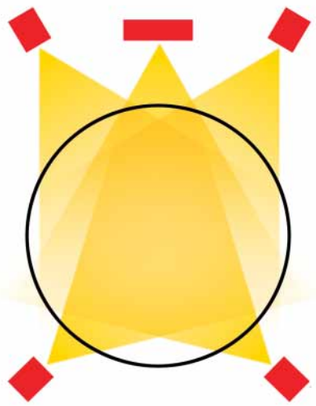
DISPERSION

Diamond 9 series has by far the best dispersion in its class, to fill the whole room with sound and to create the largest possible ideal listening area or 'sweetspot'. This is an area the where Wharfedale loudspeakers are in a league of their own. Most traditional loudspeakers have quite a narrow dispersion. Whilst the full frequency range is projected forward, moving a few degrees off axis means certain frequencies, particularly treble and mid-range frequencies sound dulled. This would mean that the listener has only a small area he or she can sit, in order to get the full benefit of the sound field.

TIMING

As well as performing well in the frequency domain, it is important that loudspeakers have good timing. This means the drive units must respond very quickly to the sound impulses and not produce any after effects or 'ringing', when the impulse has passed. Diamond 9 addresses this accuracy at many levels. The curved sides of the cabinet prevent 'standing waves' building up that could otherwise continue to make sound after the impulse has passed. A new advanced alloy chassis with narrow and profiled 'legs' has been designed to prevent sound waves reflecting back straight into the cone. A brand new 'MSBR' cone surround damps transverse waves that make it to the edge of the cone, whilst our bi-directional woven KEVLAR is relatively immune to such transverse waves being established in the first place. Substantial internal bracing supports the sides and top of the loudspeaker to control cabinet resonance, strong new magnet assemblies convert the electrical impulses into movement rapidly and efficiently. Finally, but very significantly, all key parts such as the driver chassis and dispersion plates are manufactured from a special lightweight but very strong aluminium alloy. All of these factors contribute to making the sound from Diamond 9 class leading in every respect.

A narrow dispersion characteristic, such as that typically produced by other loudspeakers and especially sub-sat systems, will mean a very small listening area or 'sweetspot'



Diamond 9 offers class-leading dispersion, creating a sweetspot that fills the room, and a tonality that is consistent regardless or room type or furnishings.

Home Cinema Solutions

A larger number of loudspeaker options are now available so a system can be built to exactly meet the requirements of your listening room. The surround speakers, and bookshelf models are available as single units as well as pairs for use in 6.1 or 7.1 systems. The subwoofer and centre channel loudspeakers are supplied only as single units. The systems recommended below will provide the optimum results for the size of room specified.

SMALL ROOM (UP TO 12M²)

SMALL SYSTEM – 5.1
Front – 2 x Diamond 9.1
Rear – 2 x Diamond 9.SR
Centre – 1 x Diamond 9.CS
Subwoofer – SW150

For 6.1 system add:
1 x Diamond 9.SR

For 7.1 system add:
2 x Diamond 9.SR

MEDIUM SYSTEM – 5.1
Front – 2 x Diamond 9.2
Rear – 2 x Diamond 9.SR
Centre – 1 x Diamond 9.CS
Subwoofer – SW150

For 6.1 system add:
1 x Diamond 9.SR

For 7.1 system add:
2 x Diamond 9.SR

LARGE SYSTEM – 5.1
Front – 2 x Diamond 9.4
Rear – 2 x Diamond 9.DFS
Centre – 1 x Diamond 9.CS
Subwoofer – SW250

For 6.1 system add:
1 x Diamond 9.DFS

For 7.1 system add:
2 x Diamond 9.SR

MEDIUM ROOM (12M² to 18M²)

SMALL SYSTEM – 5.1
Front – 2 x Diamond 9.2
Rear – 2 x Diamond 9.SR
Centre – 1 x Diamond 9.CS
Subwoofer – SW150

For 6.1 system add:
1 x Diamond 9.SR

For 7.1 system add:
2 x Diamond 9.SR

MEDIUM SYSTEM – 5.1
Front – 2 x Diamond 9.3
Rear – 2 x Diamond 9.DFS
Centre – 1 x Diamond 9.CM
Subwoofer – SW250

For 6.1 system add:
1 x Diamond 9.DFS

For 7.1 system add:
2 x Diamond 9.DFS

LARGE SYSTEM – 5.1
Front – 2 x Diamond 9.5
Rear – 2 x Diamond 9.DFS
Centre – 1 x Diamond 9.CM
Subwoofer – SW250

For 6.1 system add:
1 x Diamond 9.DFS

For 7.1 system add:
2 x Diamond 9.DFS

LARGE ROOM (18M² +)

SMALL SYSTEM – 5.1
Front – 2 x Diamond 9.3
Rear – 2 x Diamond 9.DFS
Centre – 1 x Diamond 9.CM
Subwoofer – SW250

For 6.1 system add:
1 x Diamond 9.DFS

For 7.1 system add:
2 x Diamond 9.DFS

MEDIUM SYSTEM – 5.1
Front – 2 x Diamond 9.5
Rear – 2 x Diamond 9.DFS
Centre – 1 x Diamond 9.CM
Subwoofer – SW250

For 6.1 system add:
1 x Diamond 9.DFS

For 7.1 system add:
2 x Diamond 9.DFS

LARGE SYSTEM – 5.1
Front – 2 x Diamond 9.6
Rear – 2 x Diamond 9.DFS
Centre – 1 x Diamond 9.CM
Subwoofer – SW250

For 6.1 system add:
1 x Diamond 9.DFS

For 7.1 system add:
2 x Diamond 9.DFS

Specifications










	DIAMOND 9.0	DIAMOND 9.1	DIAMOND 9.2	DIAMOND 9.3	DIAMOND 9.4	DIAMOND 9.5	DIAMOND 9.6	DIAMOND 9.CC	DIAMOND 9.CS	DIAMOND 9.CM	
Format	Stand	Stand	Stand	Stand	Floor	Floor	Floor	Centre	Centre	Centre	Format
Drivers											Drivers
Bass	4" B/M	5" B/M	6.5" B/M	8" B/M	6.5" B/M	6.5" BASS	2 x 8" BASS	2 x 4" B/M	2 x 5" B/M	2 x 6.5"B/M	Bass
Mid	--	--	--	--	--	6.5" B/M	50mm TEX	--	--	50mm TEX	Mid
Tweeter	25mm TEX	25mm TEX	25mm TEX	25mm TEX	25mm TEX	25mm TEX	25mm TEX	25mm TEX	25mm TEX	25mm TEX	Tweeter
Power Handling (Programme)	15 - 75W	20 - 100W	20 - 100W	30 - 120W	20 - 100W	30 - 150W	40 - 200W	15 - 120W	20 - 120W	30 - 150W	Power Handling (Programme)
Nominal Impedance	6 Ohm*	6 Ohm*	6 Ohm*	6 Ohm*	6 Ohm*	6 Ohm*	6 Ohm*	6 Ohm*	6 Ohm*	6 Ohm*	Nominal Impedance
A/V Shield	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	A/V Shield
Sensitivity 1W @ 1m	86dB	86dB	86dB	88dB	86dB	88dB	90dB	88dB	89dB	90dB	Sensitivity 1W @ 1m
Frequency Range at -6 dB	60Hz - 24kHz	50Hz - 24kHz	45Hz - 24kHz	40Hz - 24kHz	40Hz - 24kHz	30Hz - 24kHz	28Hz - 24kHz	80Hz- 24kHz	70Hz - 24kHz	70Hz - 24kHz	Frequency Range at -6 dB
HF limit -10 dB	44kHz	44kHz	44kHz	44kHz	44kHz	44kHz	44kHz	44kHz	44kHz	44kHz	HF limit -10 dB
Crossover Frequency	2.2kHz	2.3kHz	2.0kHz	2.0kHz	2.0kHz	140Hz, 2.2kHz	150Hz,1.0kHz,6.0kHz	2.8kHz	2.8kHz	1.0kHz, 6kHz	Crossover Frequency
Frequency Fb	55Hz	50Hz	45Hz	40Hz	40Hz	35Hz	30Hz	70kHz	65Hz	75Hz	Frequency Fb
Cabinet Size (mm)											Cabinet Size (mm)
H	236	296	364	450	800	900	1080	120	189	223	H
W	145	194	223	247	223	223	247	330	400	515	W
D	165	278	301	331	301	301	331	130	233	265	D
Height on plinth & spikes	--	--	--	--	850	950	1133	128	199	233	Height on plinth & spikes




	DIAMOND 9.SR	DIAMOND 9.DFS		SW150	SW250
Format	Wall / Shelf	Wall	Format	Sub	Sub
Drivers			Drivers		
Bass	4" B/M	4" B/M x 2	Bass	1 x 10" Sub	1 x 10" Sub
Mid	--	--	Mid	--	--
Tweeter	25mm TEX	25mm TEX x 2	Tweeter	--	--
Power Handling (Programme)	10 - 60W	15 - 200W	Amplifier Power	150W	250W
Nominal Impedance	6 Ohm*	6 Ohm*	Nominal Impedance	--	--
A/V Shield	No	No	A/V Shield	No	No
Sensitivity 1W @ 1m	88dB	86dB	Line Input / Sensitivity	200mv/75W	325mv/150W
Frequency Range at -6 dB	70Hz - 24kHz	70Hz- 24kHz	Average Max O/P 1M	--	--
HF limit -10 dB	44kHz	44kHz	Boundary Position	35Hz - 110Hz	30Hz - 100Hz
Crossover Frequency	2.2kHz	3.5kHz	HF limit -10 dB	--	--
Frequency Fb	70Hz	80Hz	Crossover	35Hz - 85Hz	35Hz - 85Hz
Cabinet Size (mm)	236	280	Range	6 x 10Hz	6 x 10Hz
H	185	290	Frequency Fb	Steps	Steps
W			Cabinet Size (mm)		
D	117	132	H	330	420
			W	330	420
			D	370	375
			On Feet	360	478
			Facilities	Manual Controls Phase rev. Auto Power Defeat Hi level I/p's	RC supplied 4 Pre-sets Hi level I/p's

*All speakers are compatible with any 8 Ohm amplifier output

Finishes

All speaker parts metallic tungsten grey / black & silver grille / plinths black / spikes tungsten grey


Rosewood Vinyl


Beech Vinyl


Cherry Vinyl


Black Ash Vinyl


Silver Vinyl

COMPLETE HOME CINEMA PACKAGE

The Diamond 9 Home Cinema pack is also available. This contains :-

1 x Diamond 9.CC

2 x Diamond 9.0

2 x Diamond 9.SR

1 x SW100 (shown below)

40M loudspeaker cable

2 wall mounting brackets

The SW100 is a smaller, downward firing powered (100w) subwoofer specifically designed for this application

Wharfedale

Wharfedale is a member of the International Audio Group
Wh.d9.15.11.2004

IAG House, Sovereign Court,
Ermine Business Park,
Huntingdon, PE29 6XU,
England.
Tel: +44 (0) 1480 447700
Fax: +44 (0) 1480 431767
www.wharfedale.co.uk