

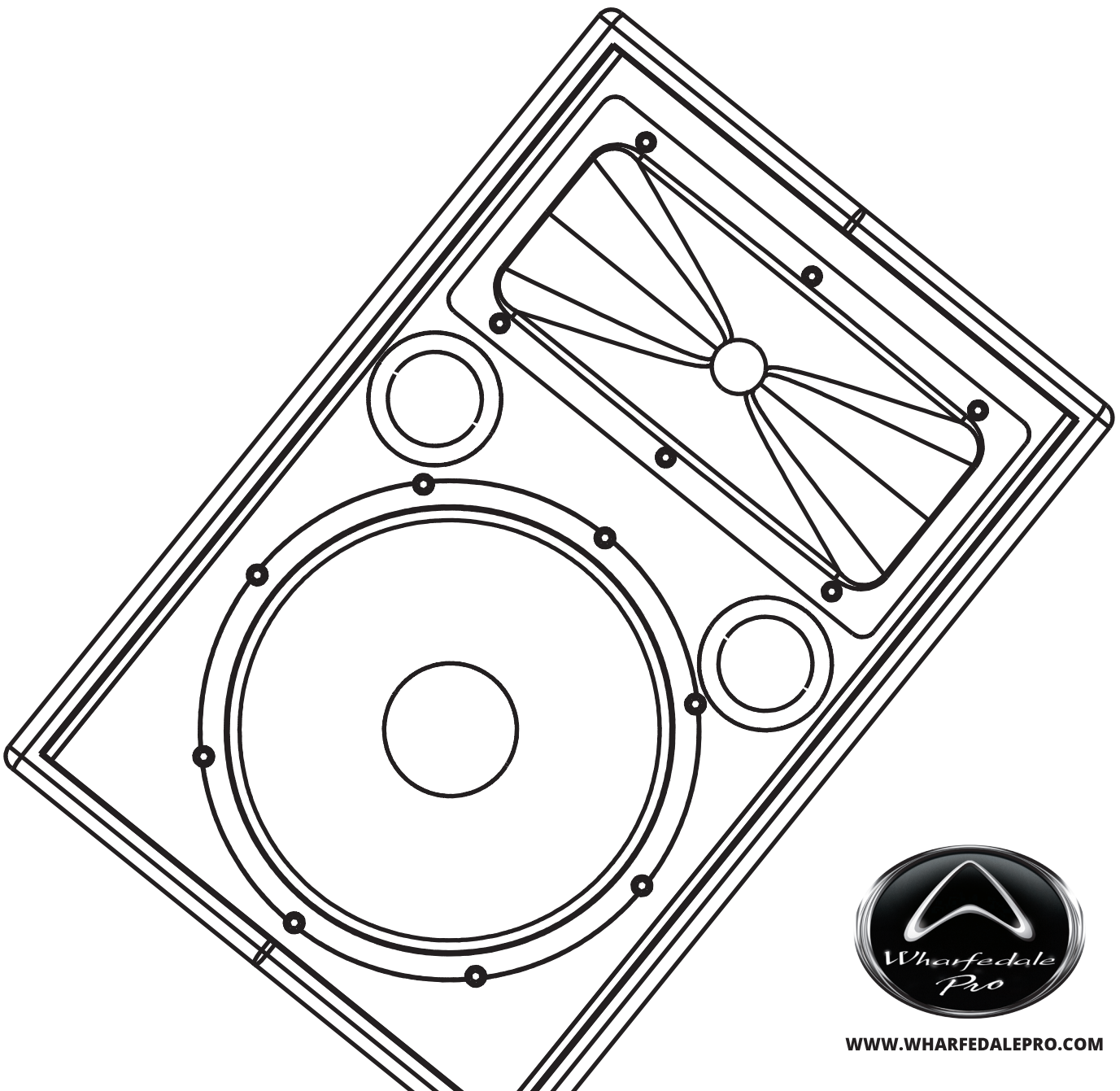


PROFESSIONAL SOUND SYSTEMS >>>

SIGMA Series

OPERATING MANUAL AND USER GUIDE

SIGMA-8 SIGMA-10 SIGMA-12 SIGMA-15 SIGMA-18B SIGMA-V4 SIGMA-V8



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TABLE OF CONTENTS

IMPORTANT WARNINGS & SAFETY INSTRUCTIONS.....	1
SIGMA SERIES INTRODUCTION	2
KEY FEATURES	2
INSTALLATION.....	2
CONNECTIONS / WIRING	3
RIGGING / SUSPENDING	4
DIMENSIONAL DRAWINGS.....	5
SPECIFICATIONS.....	8
WARRANTY.....	9



IMPORTANT WARNINGS & SAFETY INSTRUCTIONS

- **READ ALL INSTRUCTIONS** - Become familiar with the features and functions of these products before operating them.
- **COMPLY WITH ALL WARNINGS** - All warnings and instructions for this product should be adhered to.
- **USE WITH AMPLIFIERS** - In order to avoid damage to drivers and other equipment, it is advisable to establish and follow a routine for powering up and powering down a sound system. With all system components connected, turn on source equipment (mixers, signal processors, record and playback units, etc.) **BEFORE** powering up amplifiers. Transient voltages from powering up source equipment can damage speakers if amplifiers are already turned on. Make sure that amplifier volumes are set to their minimum settings and power up any system amplifiers **LAST**. It is recommended that all system components be allowed to stabilize for several seconds before any source signals are introduced or level setting adjustments are made. Similarly, when shutting systems down, turn all amplifiers off first, before powering down any other system components.
- **CABLES** - Do not use shielded or microphone cable for connection between amplifiers and speakers. Use only approved speaker cables with proper connectors.
- **RIGGING, SUSPENDING, AND MOUNTING** - Suspending and mounting of these speaker systems can expose members of the public to serious health risks and even death.

Under no circumstances attempt to rig, suspend or otherwise mount these speakers unless you are fully qualified and certified to do so by relevant local, state and national authorities. All relevant safety regulations must be followed. If you are not properly qualified or do not know of pertinent regulations, consult qualified personnel for advice.

- **CAUTION** - These professional loudspeaker systems are capable of generating very high sound pressure levels. Use care with placement and operation to avoid exposure to excessive volume levels. Permanent hearing damage can result when operated to extreme levels.
- **SERVICE**-There are no user serviceable parts inside this product. Users should not attempt to service this product. Warranty nullification could result if this is attempted.

INTRODUCTION

Wharfedale Pro SIGMA Series are extreme power handling, ultra hardwearing loudspeakers in an affordable package built for a multitude of live sound applications. Our latest developments in loudspeaker technology harness dual voice coil woofers reaching depths of 35Hz. These proprietary LF drivers are paired with 1.75" Titanium Tweeters which throw high end to your crowd, while crossover points and acoustic characteristics are tuned by our experienced engineers for sonic accuracy. The cabinets adapt to multiple formations – M8 rigging points, dual angle speaker poles and carry handles meet the varying demands of fixed installation and touring with our Rhino Rock finish and steel grilles providing protection for a lifetime of use.

KEY FEATURES

Very High SPL Output Capability

High Sensitivity & Dynamic Range

Custom 90 x 60 HF Waveguides

Custom High Output, Low Distortion Woofers

Custom Compression Drivers

Dual layer Voice Coils (Quad layer on SIGMA 18B)

Proprietary Rhino Rock Painted Enclosure

HF Protection Circuitry

Parallel Wired speakon Inputs

Dual Angle Pole Mount Receptacles (Excludes SIGMA 8)

INSTALLATION

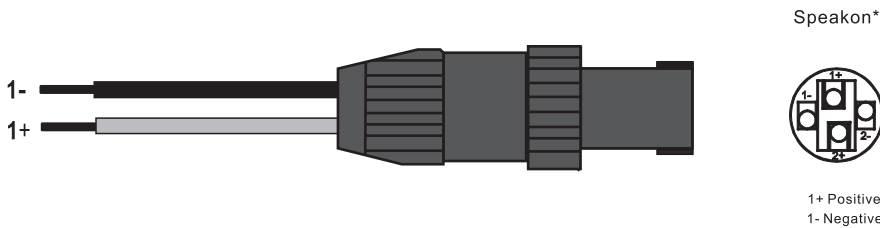
Before attempting to install a SIGMA Series Loudspeaker system please refer to the important warnings and safety instructions. Only qualified personnel should install a loudspeaker system.

Improper installation of a loudspeaker system can cause serious harm and even death if correct procedure is not followed. Anyone attempting installation assumes all liability arising from such use.

Speakers with dual angle pole mount sockets (SIGMA 10 / 12 / 15) have an sockets that angles the cabinet down by 10°. This allows more sound to be aimed directly at the audience and less at the ceiling, reducing early reflections. Please ensure that the correct socket is used for each speaker.

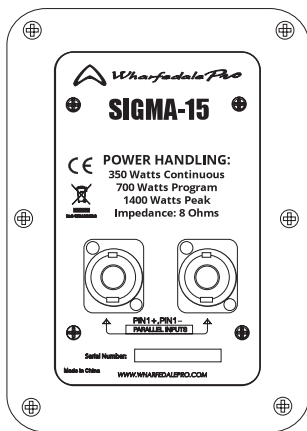
CONNECTIONS/WIRING

Connecting the SIGMA Series to your system is easy. The input panel includes parallel Speakon connectors. Run your speaker wires from your amplifier to the speaker - you can use either input connector. Use the correct gauge of stranded insulated speaker cable according to the power handling ability of your SIGMA Series cabinet. It is always advisable to use heavier gauge (lower number) cables on longer runs. Be sure to connect your speakers in proper polarity (what many refer to erroneously, as phase). This means that in normal operation, connect one end of the same wire to the + or Red terminal on the amplifier and the other end to the +1 on the NL4 Connector. The other wire is connected to the -1 pin on the NL4 CONNECTOR. Be sure to use high quality, low gauge (thick) speaker wire and NOT shielded cable.

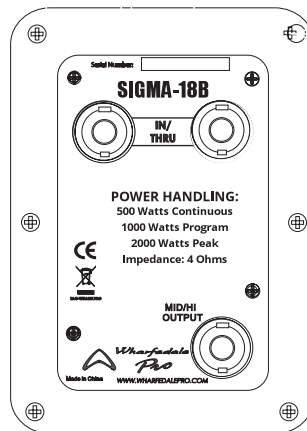


SIGMA SERIES CONNECTION PANELS

The SIGMA Series loudspeakers feature parallel wire inputs. Either input can be used for a simple system and 2 speakers can be parallel wired using a standard speaker cable. When Parallel wiring loudspeakers always take in consideration the load you are putting on your amplifier. 2 parallel wired SIGMA loudspeakers will produce a 4 ohm load.



SIGMA-8/10/12/15 Rear Panel



SIGMA-18B Rear Panel

IMPORTANT NOTE

To avoid any possible damage to your amp and speakers, be sure to check the owner's manual of your power amplifier to confirm it is capable of operating at 2 ohms. The SIGMA 18B has a High Pass output. The high pass allows you to connect a full range SIGMA loudspeaker and subwoofer to one amplifier channel with 4 ohm load

RIGGING/SUSPENDING

All full range SIGMA enclosures (except SIGMA-18B) include multiple M8 rigging points for fast, safe and secure suspension.

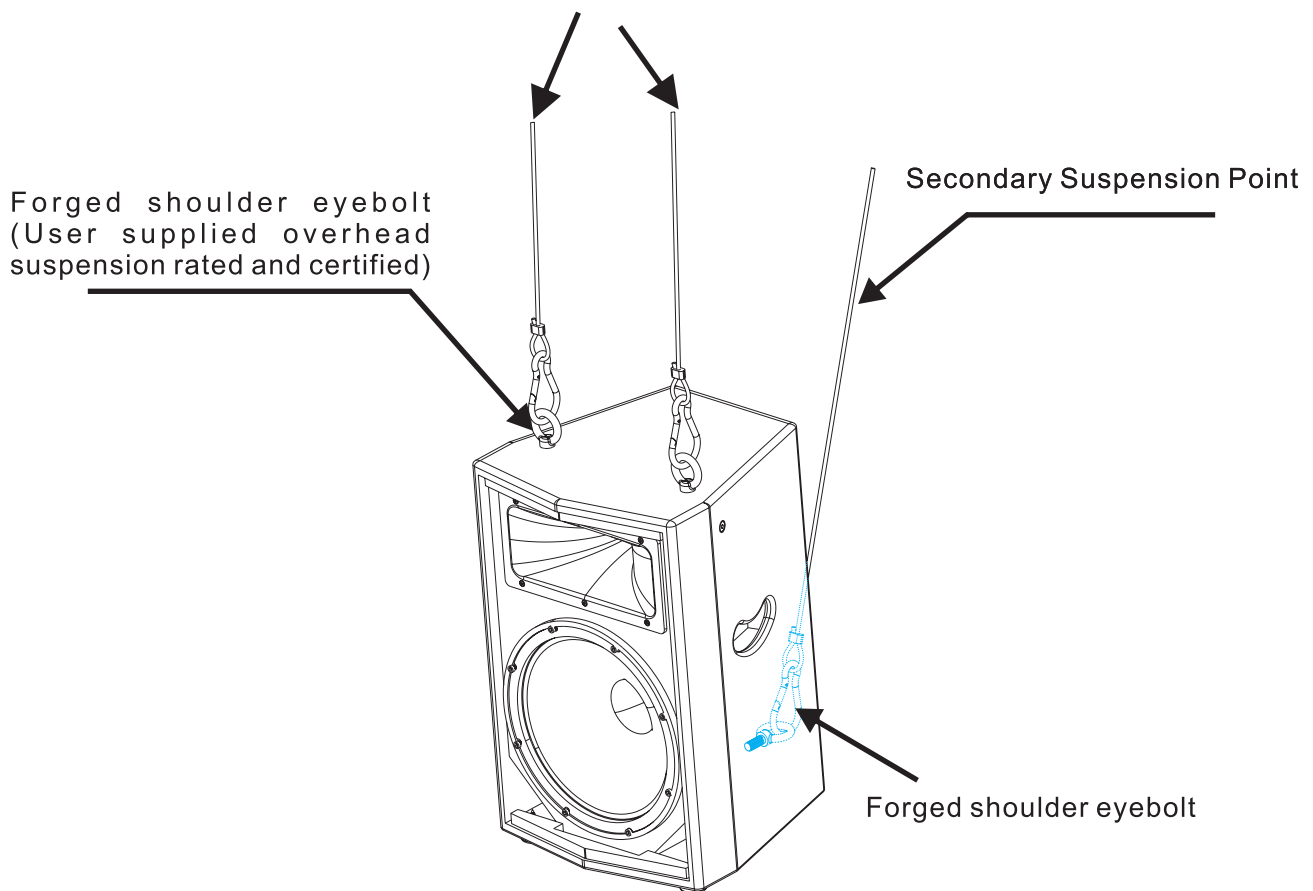
Using Shoulder Eyebolts

Always apply the load to the bolt along the plane of the eye. For long term installation use a thread-locking compound. Do not attempt to bend or otherwise deform any rigging hardware.

Please refer to the important safety warnings before you consider suspending any loudspeakers.

Each primary load bearing suspension point shall be rated for the total load.

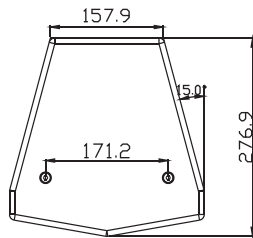
(A minimum 5:1 Design Factor)



Working load limits: NO more than four(4) high(vertical)
The four(4) high vertical specification represents a static ratio of 7:1

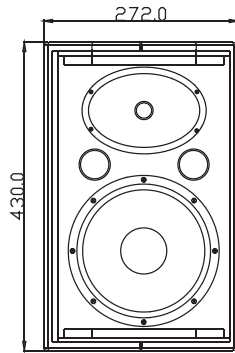


DIMENSIONAL DRAWINGS

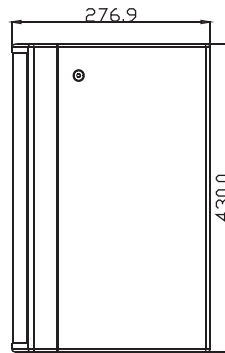


TOP VIEW

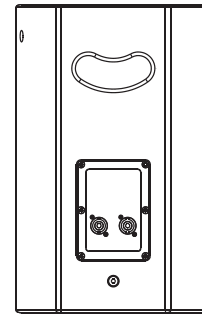
SIGMA-8



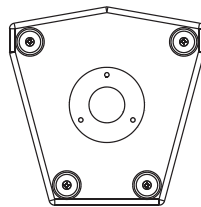
FRONT VIEW



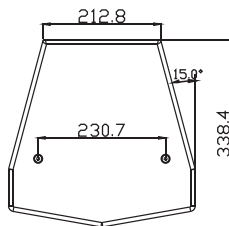
SIDE VIEW



REAR VIEW

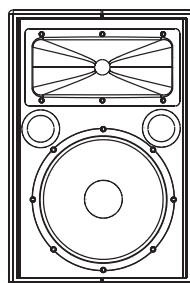


BOTTOM VIEW

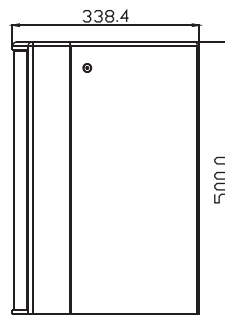


TOP VIEW

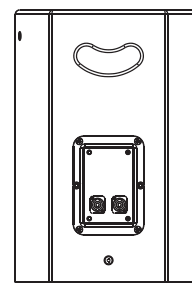
SIGMA-10



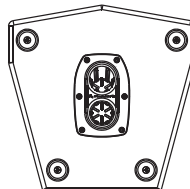
FRONT VIEW



SIDE VIEW



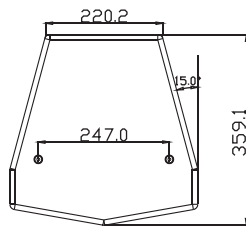
REAR VIEW



BOTTOM VIEW

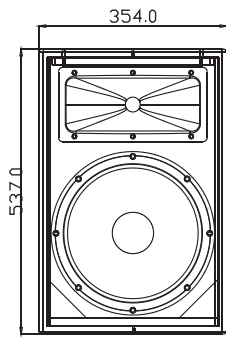


DIMENSIONAL DRAWINGS

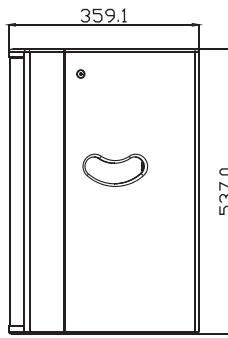


TOP VIEW

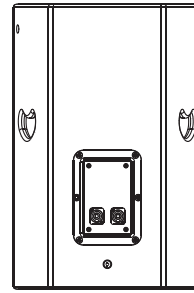
SIGMA-12



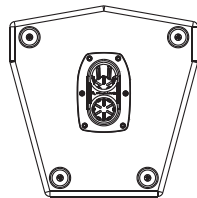
FRONT VIEW



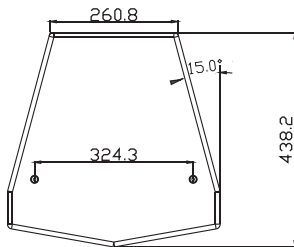
SIDE VIEW



REAR VIEW

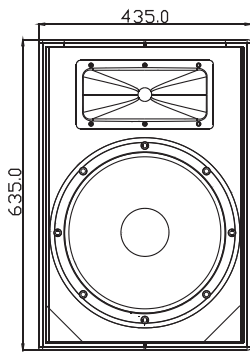


BOTTOM VIEW

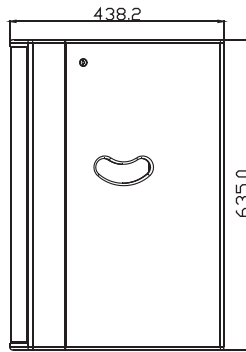


TOP VIEW

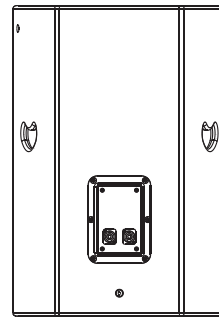
SIGMA-15



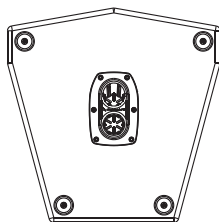
FRONT VIEW



SIDE VIEW



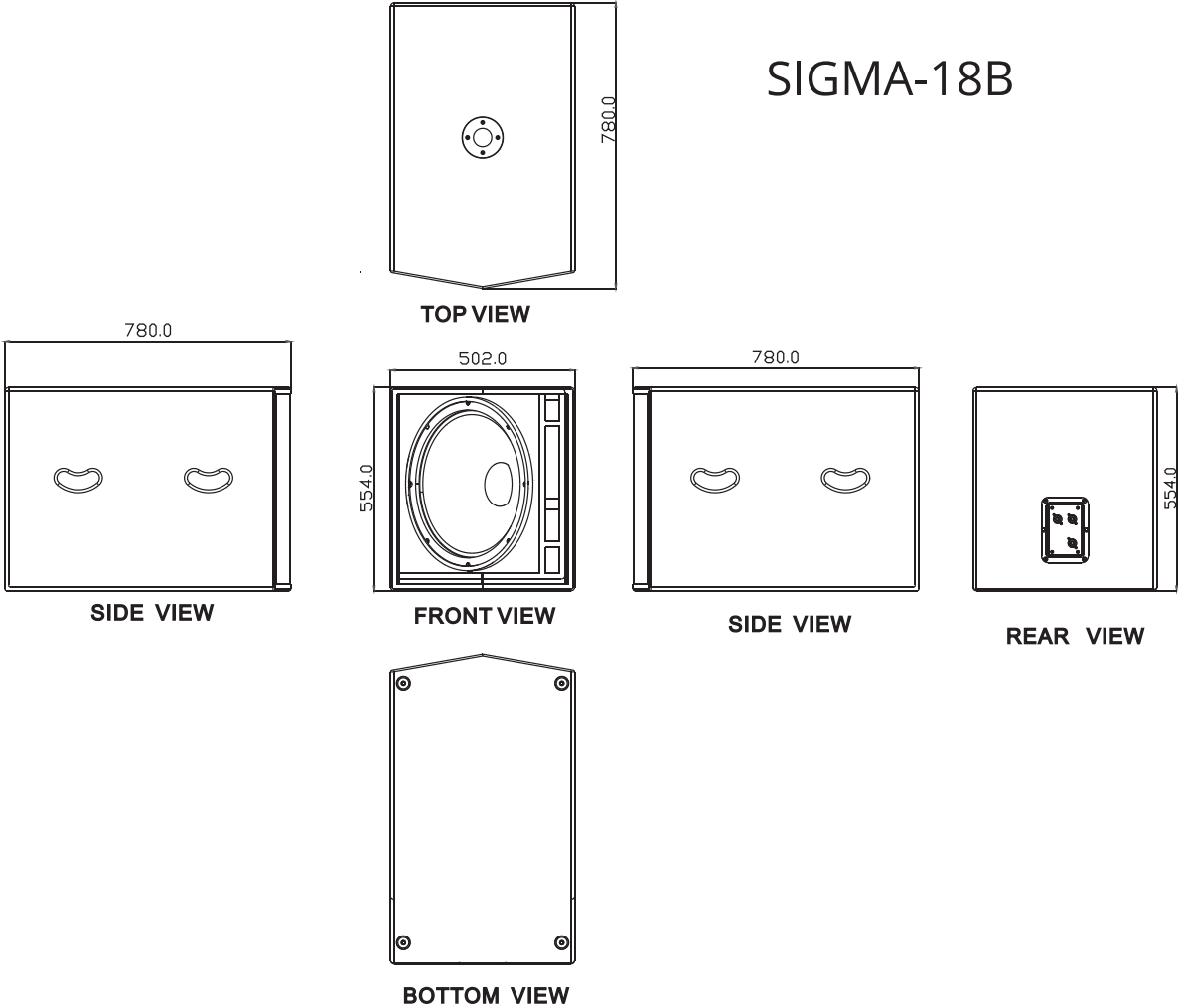
REAR VIEW



BOTTOM VIEW

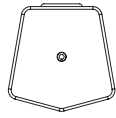
DIMENSIONAL DRAWINGS

SIGMA-18B

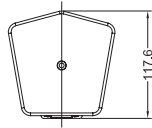
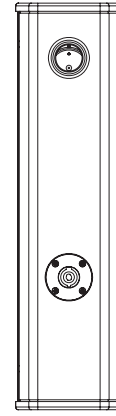
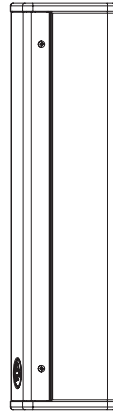
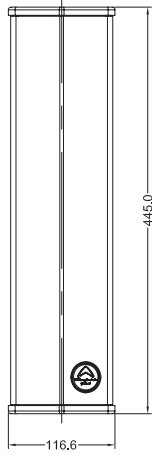
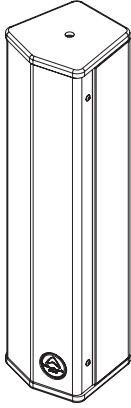




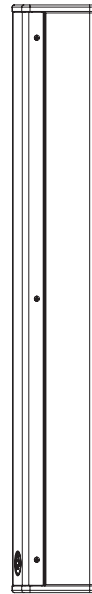
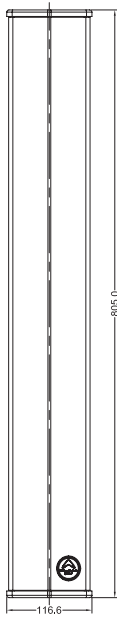
DIMENSIONAL DRAWINGS



SIGMA-V4



SIGMA-V8



SPECIFICATIONS

Model Name	SIGMA-8	SIGMA-10
System Type	Passive	Passive
Configuration	two-way	two-way
Frequency Response (+/-3dB)	75Hz-18kHz	60Hz-18kHz
Frequency Range (- 10 dB)	60Hz-20kHz	65Hz-20kHz
Sensitivity (2.83v/1m)	96dB	97dB
Calculated Maximum SPL @1m	124dB	126dB
System Rated Impedance	8Ω	8Ω
Low Frequency Transducer		
Size	203mm / 8"	254mm / 10"
Voice-Coil Size	38mm / 1.5"	38mm / 1.5"
Rated Impedance	8Ω	8Ω
LF Power (re:AES2-2012)	150W	200W
High Frequency Transducer		
HF Driver Type	Compression Driver	Compression Driver
Voice-Coil Size	25mm / 1"	44mm / 1.75"
Exit Size	1"	1"
Diaphragm Material	Polymer	Titanium
Rated Impedance	8Ω	8Ω
HF Power (re:AES2-2012)	25	40
Nominal Coverage (H x V)	90° x 60°	90° x 60°
Power		
System Continuous Power	150W	200W
System Programme Power	300W	400W
System Peak Power	600W	800W
Crossover frequency	2.8kHz	2.4kHz
Input Connector	2 x Speakon	2 x NL4 (speakON compatible)
Hardware:	35mm pole socket M8 x 5 1 Handle on back	Dual-angle (0° or 10°) 35 mm pole socket M8 x 5 1 Handle on back
Enclosure		
Enclosure Material	12mm MDF	15mm MDF
Finish	Black Paint / White Paint	Black Paint / White Paint
Grille Material & Finish	1.2mm steel, painted	1.2mm steel, painted
Dimensions - Unpacked		
Height	430mm / 17"	500mm / 19.5"
Width Front	272mm / 11"	383mm / 13.3"
Width Rear	158mm/ 6"	213mm / 8.4"
Depth	277mm / 13.5"	339mm / 13.3"
Dimensions - Packed		
Height	505mm / 20"	585mm / 23"
Width Front	363mm / 14.25"	451mm / 18"
Width Rear	196mm / 7.71"	254mm / 10"
Depth	322mm / 12.75"	384mm / 13.3"
Net Weight	7.8kg / 17lbs	15.4kg/ 7lbs
Gross Weight	8.8kg / 19lbs	38.5kg / 19lbs

SPECIFICATIONS

Model Name	SIGMA-12	SIGMA-15
System Type	Passive	Passive
Configuration	two-way	two-way
Frequency Response (+/-3dB)	55Hz-18kHz	45Hz-18kHz
Frequency Range (- 10 dB)	60Hz-20kHz	50Hz-20kHz
Sensitivity (2.83v/1m)	98dB	98dB
Calculated Maximum SPL @1m	129dB	129dB
System Rated Impedance	8Ω	8Ω
Low Frequency Transducer		
Size	305mm / 12"	381mm / 15"
Voice-Coil Size	64mm / 2.5"	64mm / 2.5"
Rated Impedance	8Ω	8Ω
LF Power (re:AES2-2012)	300W	350W
High Frequency Transducer		
HF Driver Type	Compression Driver	Compression Driver
Voice-Coil Size	44mm / 1.75"	44mm / 1.75"
Exit Size	1"	1"
Diaphragm Material	Titanium	Titanium
Rated Impedance	8Ω	8Ω
HF Power (re:AES2-2012)	40	40
Nominal Coverage (H x V)	90° x 60°	90° x 60°
Power		
System Continuous Power	300W	350W
System Programme Power	600W	700W
System Peak Power	1200W	1400W
Crossover frequency	2.2kHz	2kHz
Input Connector	2 x NL4 (speakON compatible)	2 x NL4 (speakON compatible)
Hardware:	Dual-angle (0° or 10°) 35 mm pole socket M8 x 5 2 Handles on side	Dual-angle (0° or 10°) 35 mm pole socket M8 x 5 2 Handles on side
Enclosure		
Enclosure Material	15mm MDF	15mm MDF
Finish	Black Paint / White Paint	Black Paint / White Paint
Grille Material & Finish	1.2mm steel, painted	1.2mm steel, painted
Dimensions - Unpacked		
Height	537mm / 21"	635mm / 25"
Width Front	354mm / 14"	435mm / 17"
Width Rear	218mm / 8"	261mm / 11.7"
Depth	359mm / 14"	439mm / 17.25"
Dimensions - Packed		
Height	625mm / 24.6"	720mm / 28.35"
Width Front	468mm / 18.4"	553mm / 21.75"
Width Rear	260mm / 10.2"	303mm / 12"
Depth	404mm / 15.9"	488mm / 19.2"
Net Weight	18.2kg / 40lbs	23.4kg / 51.5lbs
Gross Weight	20.9kg / 45lbs	26.7kg / 58.7lbs

SPECIFICATIONS

Model Name	SIGMA-18B	SIGMA-V4	SIGMA-V8
System Type	Passive	Passive	Passive
Configuration	subwoofer	Full Range	Full Range
Frequency Response (+/-3dB)	35Hz-250HZ	160Hz - 17KHz	130Hz - 17KHz
Frequency Range (- 10 dB)	40Hz-250HZ	150Hz - 20KHz	150Hz - 20KHz
Sensitivity (2.83v/1m)	100dB	95dB	97dB
Calculated Maximum SPL @1m	133dB	123dB	128dB
System Rated Impedance	4Ω	8Ω	8Ω
Low Frequency Transducer			
Size	457mm / 18"	4 x 75mm / 3"	8 x 75mm / 3"
Voice-Coil Size	64mm / 2.5"	33mm / 1.3"	33mm / 1.3"
Rated Impedance	4Ω	8Ω	4Ω
LF Power (re:AES2-2012)	500W	40W	40W
High Frequency Transducer			
HF Driver Type			
Voice-Coil Size			
Exit Size			
Diaphragm Material			
Rated Impedance			
HF Power (re:AES2-2012)			
Nominal Coverage (H x V)		160° x 40°	160° x 30°
Power			
System Continuous Power	500W	150W	300W
System Programme Power	1000W	300W	600W
System Peak Power	2000W	600W	1200W
Crossover frequency	2.2kHz		
Input Connector	2 x NL4 (speakON compatible)	1 x NL4 (speakON compatible)	1 x NL4 (speakON compatible)
Hardware:	35 mm pole socket 4 Handles on sides	Bracket	Bracket
Enclosure			
Enclosure Material	18mm MDF	12mm MDF	12mm MDF
Finish	Black Paint / White Paint	Black Paint / White Paint	Black Paint / White Paint
Grille Material & Finish	1.2mm steel, painted	1.2mm steel, painted	1.2mm steel, painted
Dimensions - Unpacked			
Height	554mm / 21.25"	445mm / 17.5"	805mm / 31.7"
Width Front	502mm / 20"	116mm / 4.6"	116mm / 4.6"
Width Rear	502mm / 20"	85mm / 3.3"	85mm / 3.3"
Depth	780mm / 30.8"	115mm / 4.5"	115mm / 4.5"
Dimensions - Packed			
Height	649mm / 25.5"	520mm / 20.5"	880mm / 34.5"
Width Front	588mm / 22.75"	220mm / 8.7"	220mm / 8.7"
Width Rear	588mm / 22.75"	220mm / 8.7"	220mm / 8.7"
Depth	865mm / 34"	220mm / 8.7"	220mm / 8.7"
Net Weight	40.5kg / 89lbs	3kg / / 6.6lbs	5.6kg / 12.32lbs
Gross Weight	47.8kg / 105lbs	3.6kg / 8lbs	6.6kg / 14.2lbs

SPECIFICATIONS: ENGINEERING NOTE

All Wharfedale Pro loudspeaker measurements are carried out fairly, and in-line with industry standards to ensure users can select the right product for their application, and understand exactly how it performs. Please see the below details on how our speakers are measured and how the information is presented.

- Sensitivity

Calculated from the effective frequency range, as the sound pressure level produced at 1 m on the reference axis by an applied voltage of 2.83v. Note: it is important to consider Rated Impedance when reviewing sensitivity measured with 2.83v input. Sensitivity ratings of 1w/m were replaced by the more appropriate 2.83v/m in AES2-2012. For more information refer to AES standard AES2-2012.

- Calculated Maximum SPL @1m

Max SPL is defined as the peak acoustic output calculated by $10 * \text{Log}(\text{Peak Power}) + \text{Sensitivity}$. Example: $10 * \text{Log}(800) + 96 = 125\text{dB}$.

- Power

Power, expressed in units of watts is defined by the equation v^2/Z where v=voltage input and Z=Rated Impedance. Example: $492/8=300$ watts. Using band limited pink noise, the voltage average is measured with a true RMS meter. Band limited signal Crest Factor is typically 12dB, meaning that peaks deliver 4 x the v, or 16 x the power of the average input level.

Note: Loudspeaker power rating is a complex topic. WP endeavors to demystify power ratings by explaining procedures. The AES2-2012 standard for loudspeaker drivers in section 6 describes power handling. Be aware that the AES power handling ratings are for an accelerated two-hour test designed as a repeatable test to define a benchmark to compare loudspeaker drivers. The AES2-2012 section 6 definition is in no way intended to define long term operating power levels, nor is it appropriate for systems.

- Continuous Power

The average dynamic power capacity over the device's recommended bandwidth that may be sustained continuously. WP test with band limited pink noise applied for a minimum of eight hours.

- Program Power

Program power is a useful rating to guide the choice of amplifier power that may safely be coupled to the system. Common sense must be considered dependent on the source signal."

- Peak Power

The capacity to withstand short peaks, typically less than 10ms, delivered by dynamic peaks of audio signals, within the recommended bandwidth."



WHARFEDALE PRO LIMITED WARRANTY

Wharfedale Pro products are warranted of manufacturing or material defects for a period of one year from the original date of purchase. In the event of malfunction, contact your authorized Wharfedale Pro dealer or distributor for information.

*Be aware that warranty details may differ from country to country. Contact your dealer or distributor for information. These terms do not infringe your statutory rights.





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