VHD2.0 • VHD1.0
VHD Flyware
User Guide

The Future of Sound. Made Perfectly Clear.

At KV2 Audio our vision is to constantly develop technologies that eliminate distortion and loss of information providing a true dynamic representation of the source.

Our aim is to create audio products that absorb you, place you within the performance and deliver a listening experience beyond expectations.

Important Safety Instructions

Before using your VHD2.0, VHD1.0, be sure to carefully read the applicable items of these operating instructions and the safety suggestions.

1. **Read all product instructions.**
2. **Keep printed instructions, do not throw away.**
3. **Respect and rewiew all warnings.**
4. **Follow all instructions.**
5. **Clean only with dry cloth.**
6. **Install in accordance with KV2 Audio's recommended installation instructions.**
7. **Only use accessories specified by KV2 Audio.**
8. **Install the product only with rigging specified by KV2 Audio, or sold with the loudspeaker.**
9. **Unplug this loudspeaker during lightning storms or when unused for long periods of time.**
10. **An experienced user shall always supervise this professional audio equipment.**

Contents

VHD2.0
MID/HI MODULE

VHD2.0 R (right) - part number KVV 987 077
VHD2.0 L (left) - part number KVV 987 078

Touring and Installation Mid High Enclosure

Application

Designed as an extreme high output and performance mid-hi unit as part of the VHD systems Very High Definition for live performance

- Medium to large concert venues
- Scalable from small to large systems
- Full range standalone use in public areas
- Hire and Production
- Large Theatres

Introduction

The VHD2.0 is a dedicated powerful long throw projection Mid Hi enclosure for use with accompanying KV2 Audio Subwoofer systems, for audiences of up to 20,000 people without requirement for additional delay systems, that represents the pinnacle of KV2 Audio's design philosophy for compact, high output Audio performance systems.
Acoustical design is based on high efficiency Horn loading as a three-way design and is built to the same robust standards of existing KV2 Audio enclosures.
It can also be used at lower outputs as a full range enclosure where subwoofers are not necessarily required.
Primarily designed for Live Music applications that require reproduction of high transient content with a large dynamic range at extreme output levels.

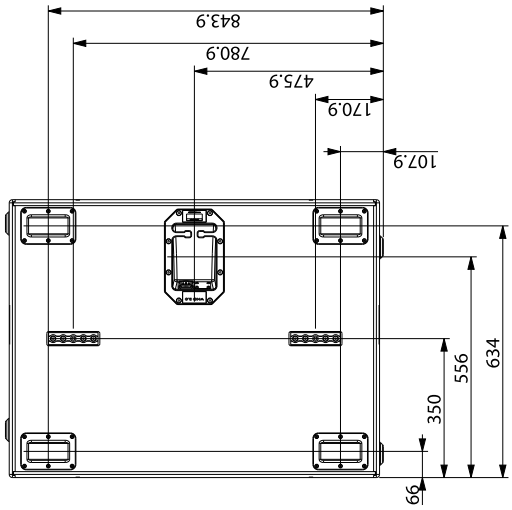
Acoustic components

The VHD2.0 Mid Hi module features purpose designed and specified speaker components, centered around high efficiency woofer design technology. Two mid bass 12" woofers, with inside outside 3' coil, and Epoxy reinforced cellulose cones are employed, alongside two mid range 8" woofers, with 3" Transcoil and Epoxy reinforced cellulose cones. A 3" compression driver with NVPD treated dome assembly, featuring AIC technology is applied for High frequencies. All speakers employ neodymium magnets to increase force, improve control and lower weight. The VHD2.0 has an 80° horizontal and 40° vertical dispersion and left and right versions of the speaker are offered in order to create larger format vertical arrays of the mid high system.

Enclosure Design

The VHD2.0 Enclosure is a compact Horn Loaded design, built in lightweight Baltic Birch, featuring a number of ergonomically designed parts and functions that make it an easy unit to move, set up and operate. There are a total of six handles integrated, (2 each side and one top and bottom), to facilitate easy pick up and positioning of the enclosure in a natural -instinctive and intuitive manner.
Low friction feet are integrated for easy locking into existing KV2 Audio enclosures in the VHD range. Flytrack is fitted to the enclosure to allow easy flying and suspension via the KV2 Audio propriety Certified Flyware system.

Drawing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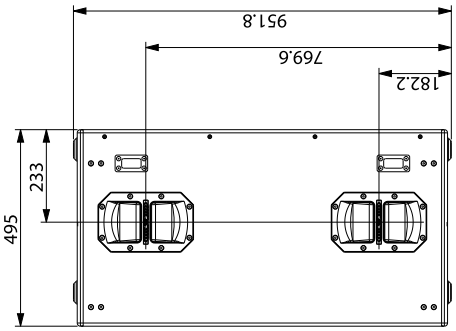
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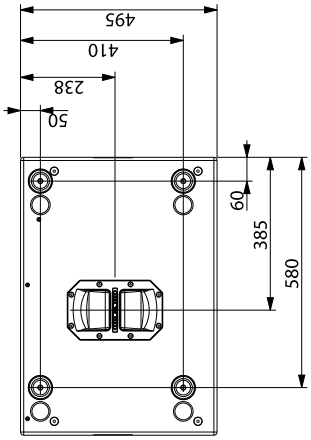
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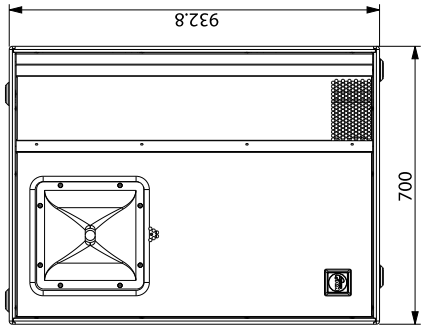
932.8
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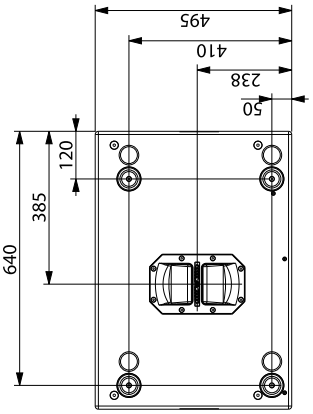
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410
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50
120
385
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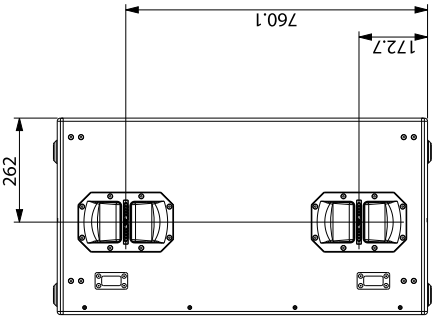
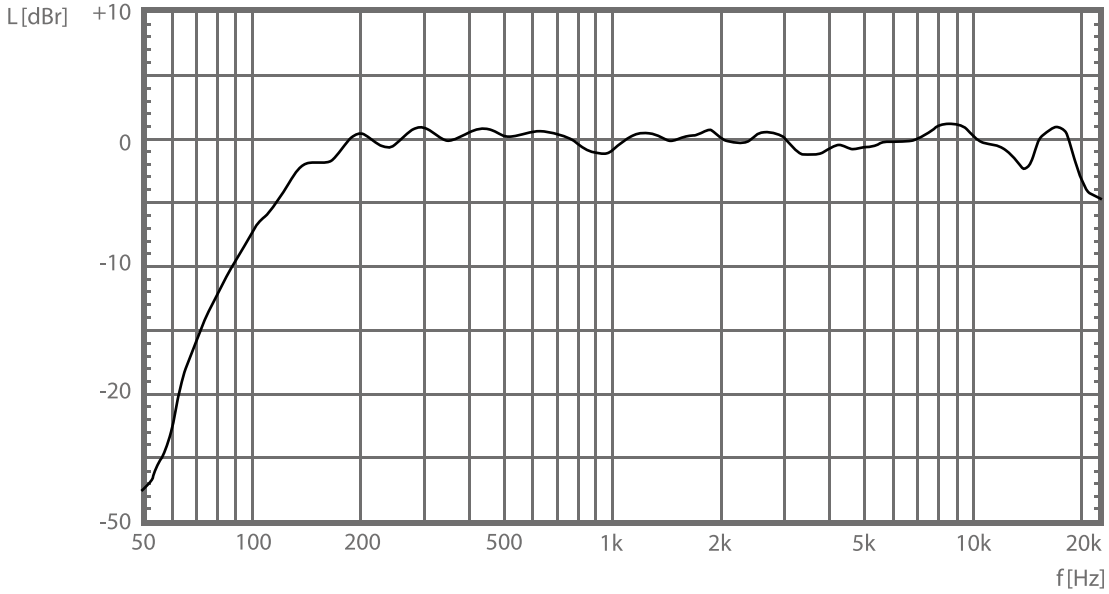
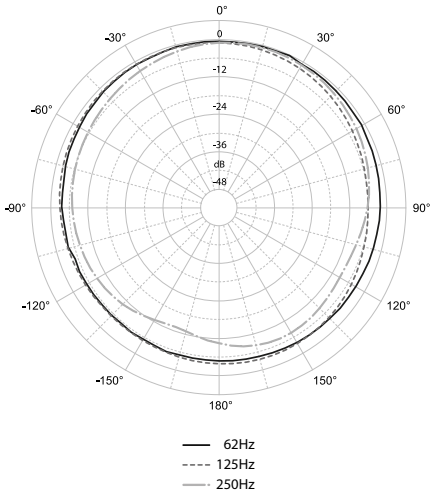

760.1
172.7
262

Frequency response

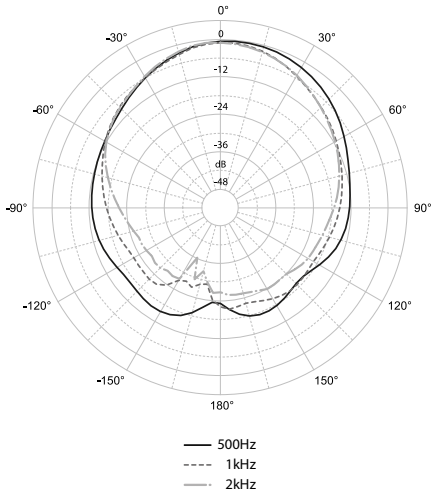


Horizontal Polarplots

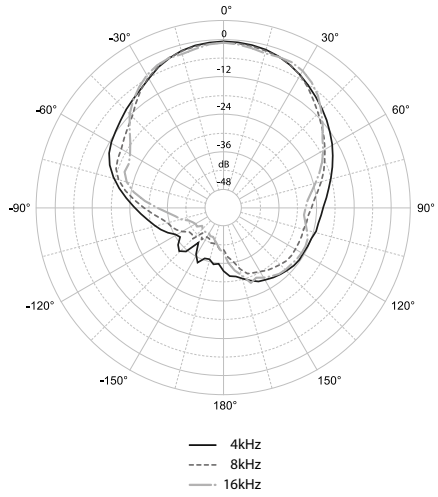
62Hz - 250Hz



500Hz - 2kHz

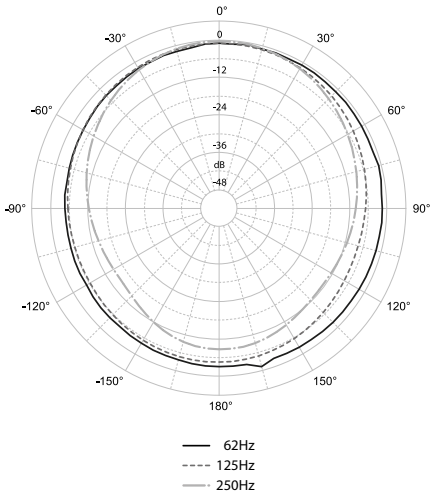


4kHz - 16kHz

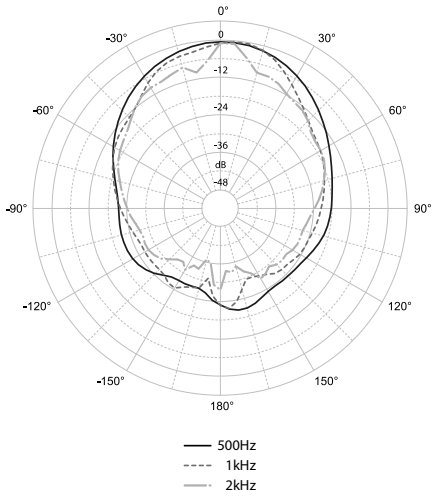


Vertical Polarplots

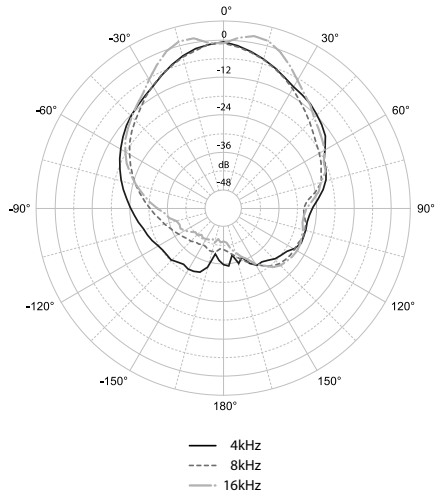
62Hz - 250Hz



500Hz - 2kHz



4kHz - 16kHz



Specifications

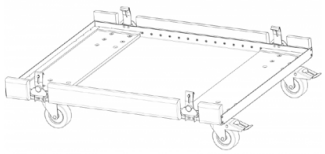
System Acoustic Perfomance	
Max SPL Long-term	139dB (144dB two VHD 2.0's)
Max SPL Peak	145dB (147dB two VHD 2.0's)
-3dB Response	100Hz to 22kHz
-10dB Response	85Hz to 30kHz
-3dB Response (Full Range mode)	65Hz to 22kHz
Crossover Point	100Hz, 450Hz, 2.2kHz
High Frequency Section	
Acoustic Design	Horn Loaded
High Horn Coverage Horizontal / Vertical	80° x 40° / 80° x 10° (2x VHD 2.0's)
High Frequency Amplifier Requirement	200W (VHD2000 amp.)
Throat Exit Diameter / Diaphragm Size	1.4" / 3.0"
Diaphragm Material	Nitride Titanium
Magnet Type	Neodymium
Mid Range Section	
Acoustic Design	Horn Loaded
Mid Horn Coverage Horizontal / Vertical	80° x 40° / 80° x 10° (2x VHD 2.0's)
Midrange Amplifier Requirement	600W (VHD2000 amp.)
Woofer Size / Voice Coil Diameter / Design	2x 8" / 3.0" / Trans Coil
Diaphragm Material	Epoxy Reinforced Cellulose
Magnet Type	Neodymium
Mid-Bass Section	
Acoustic Design	Horn Loaded
Mid-bass Amplifier Requirement	1200W (VHD2000 amp.)
Woofer Size / Voice Coil Diameter	2x 12" / 3" / Inside Outside
Diaphragm Material	Epoxy Reinforced Cellulose
Magnet Type	Neodymium
Speaker Input	
Speaker Input	AP6 male
Cabinet	
Cabinet Material	Baltic birch
Handles	6
Color	Black (wear resistant polymer coating)
Physical Dimensions	
Height	933 mm (36.72")
Width	700 mm (27.55")
Depth	495 mm (19.48")
Weight	70 kg (154.0lbs)
Amplification and control	
Amplification and control	VHD2000

Cover for VHD2.0

part name:
Cover VHD2.0
part number:
KVV 987 104
description:
- used with cart

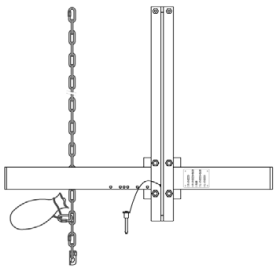
Cart for VHD2.0

part name:
Cart for VHD2.0
part number:
KVV 987 099
description:
- Front mount aluminium VHD2.0 cart
- with hardwood bumpers



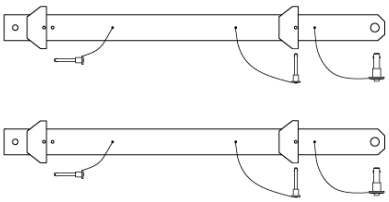
Fly Bar for VHD Systems

part name:
Fly Bar for VHD Systems
part number:
KVV 987 252



VHD2.0 Top Fly Bar Arm

part name:
VHD2.0 Top Fly Bar Arm
part number:
KVV 987 309



VHD2.0 Top Extension Fly Bar Arm

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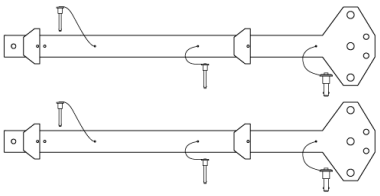
VHD2.0 Top Extension Fly Bar Arm
part number:
KVV 987 306



Mid/Hi speaker cable MH60

part name:
Cable MH60
part number:
KVV 987 125
description:
- 6 wire speaker cable
- AP6 connectors
- 6m (20ft) length
- for Mid/Hi Module hook-up

Mid/Hi speaker cable MH120

part name:
Cable MH120
part number:
KVV 987 126
description:
- 6 wire speaker cable
- AP6 connectors
- 12m (40ft) length
- for Mid/Hi Module hook-up

Mid/Hi speaker cable MH180

part name:
Cable MH180
part number:
KVV 987 127
description:
- 6 wire speaker cable
- AP6 connectors
- 18m (60ft) length
- for Mid/Hi Module hook-up

VHD1.0 MID/HI MODULE

Mid High/Down-fill Enclosure

VHD1.0 R (right) - part number KVV 987 141
VHD1.0 L (left) - part number KVV 987 076

Application

Designed as a dedicated mid high - downfill enclosure to accompany the VHD2.0 as part of the VHD systems

- Medium to large concert venues
- Fixed installation
- Outdoor events

Introduction

The VHD1.0 is a dedicated downfill enclosure primarily designed to accompany a suspended VHD2.0 enclosure and fuflill near and front fill duties as part of a full range system. It represents the pinnacle of KV2 Audio's design philosophy for compact, high output Audio performance systems. Acoustical design is based on high efficiency Horn loading as a three-way design and is built to the same robust standards of existing KV2 Audio enclosures. The VHD1.0 can also be used stand-alone in conjunction with other VHD and KV2 Subwoofers as a complete system, as well at lower output levels as a full range enclosure where subwoofers are not necessarily required.
Primarily designed for Live Music applications that require reproduction of high transient content with a large dynamic range at extreme output levels.

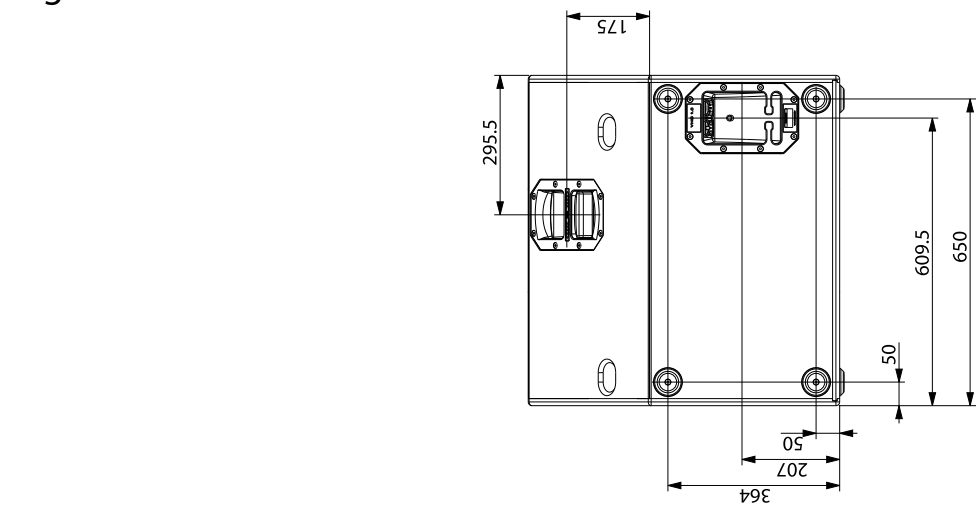
Acoustic components

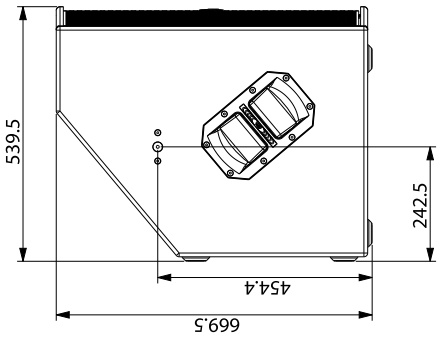
The VHD 1.0 Downfill module features purpose designed and specified speaker components, centered around high efficiency woofer design technology. One mid bass 12" woofer, with inside outside 3' coil, and Epoxy reinforced cellulose cone are employed, alongside one mid range 8" woofer, with 3" Transcoil and Epoxy reinforced cellulose cone. A 3" compression driver with NVPD treated dome assembly, featuring AIC technology is applied for High frequencies. All speakers employ neodymium magnets to increase force, improve control and lower weight. The VHD1.0 has an 110° horizontal and 40° vertical dispersion and left and right versions of the speaker are offered in order to create larger format vertical arrays of the mid high system.

Enclosure Design

The VHD1.0 Enclosure is a compact Horn Loaded design, built in lightweight Baltic Birch, featuring a number of ergonomically designed parts and functions that make it an easy unit to move, set up and operate. There are a total of three handles integrated, (1 each side and one top), to facilitate easy pick up and positioning of the enclosure in a natural -instinctive and intuitive manner.
Low friction feet are integrated for easy locking into existing KV2 Audio enclosures in the VHD range. Flytrack is fitted to the enclosure to allow easy flying and suspension via the KV2 Audio propriety Certified Flyware system.

Drawing


175
295.5
609.5
650
50
50
207
364


539.5
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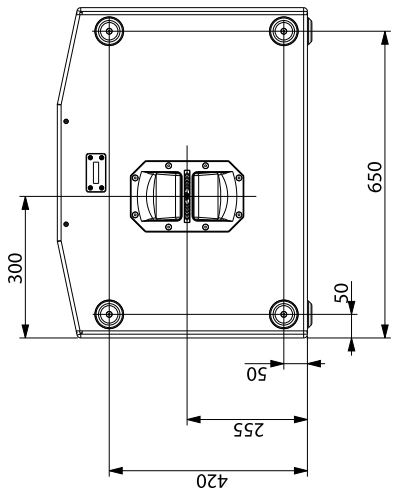
669.5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50
50
255
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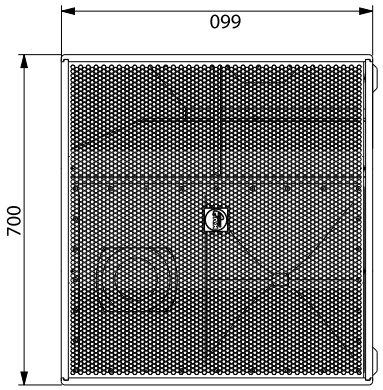
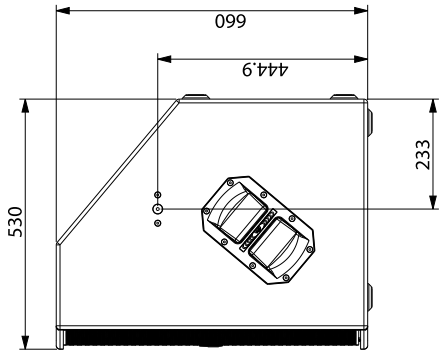
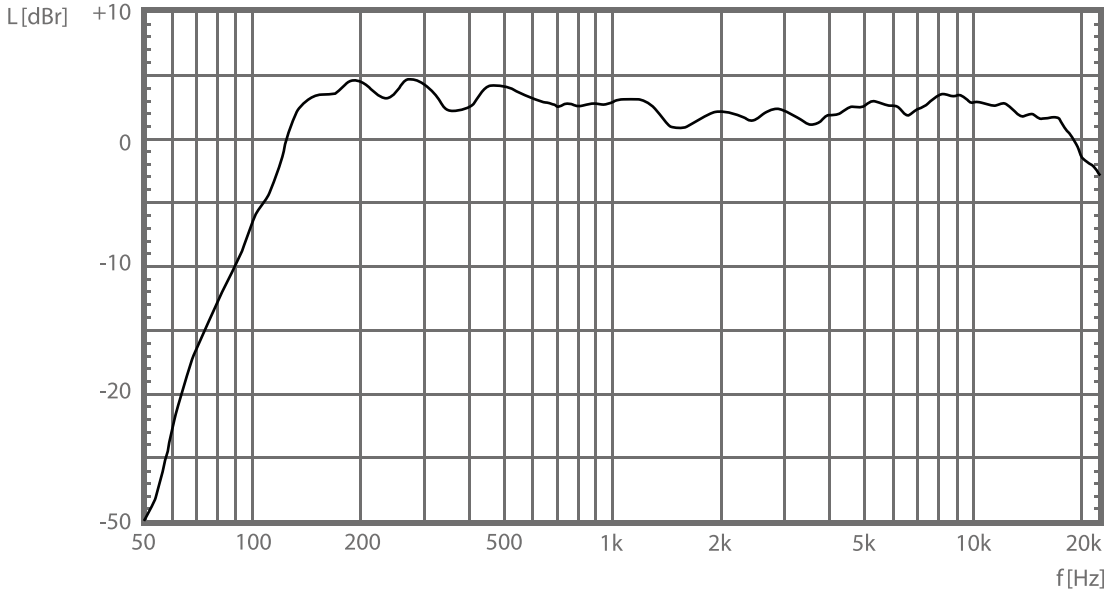

660
700

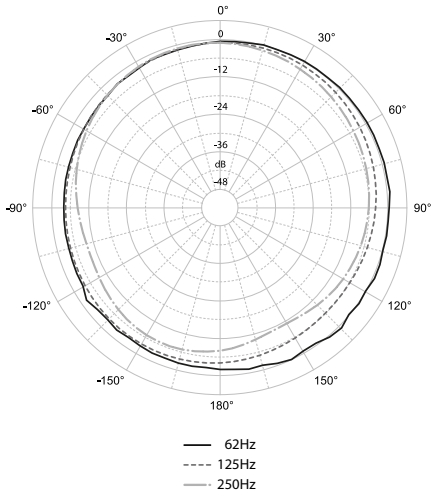

660
444.9
233
530

Frequency response

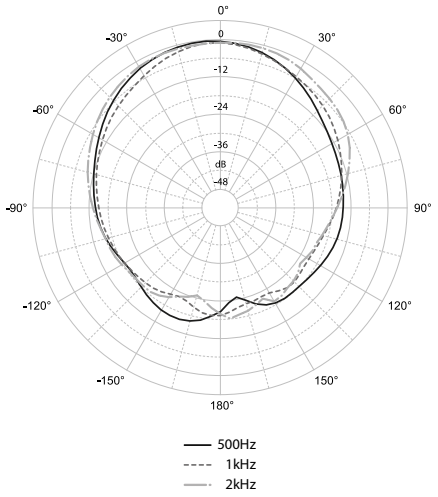


Horizontal Polarplots

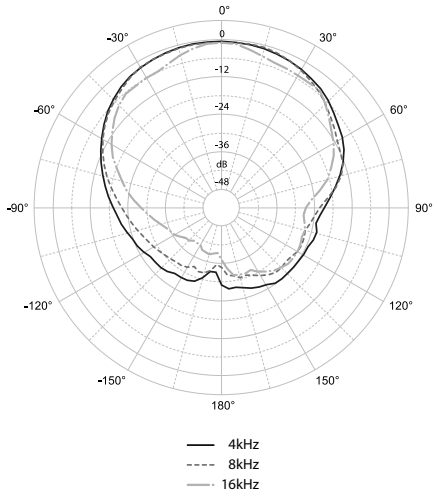
62Hz - 250Hz



500Hz - 2kHz

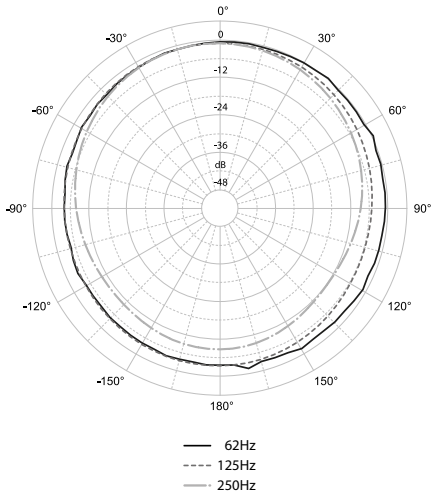


4kHz - 16kHz

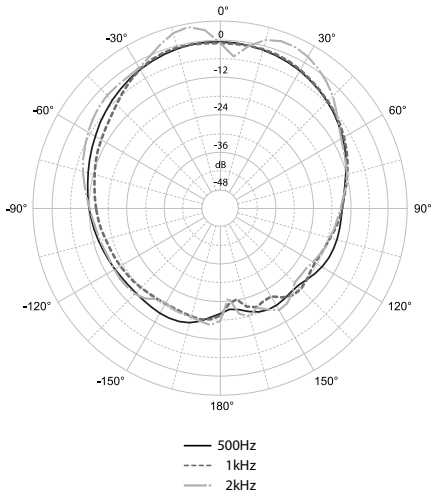


Vertical Polarplots

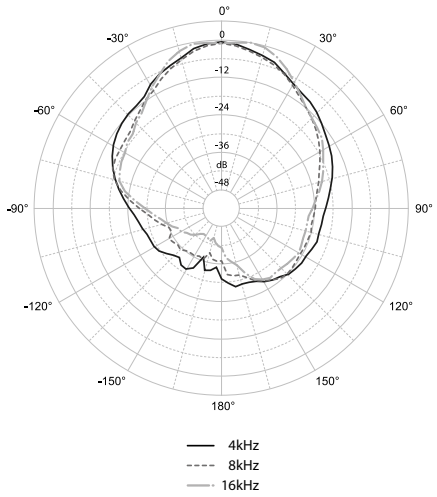
62Hz - 250Hz



500Hz - 2kHz



4kHz - 16kHz



Specifications

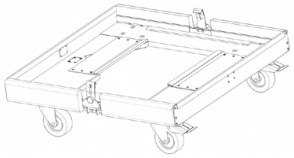
System Acoustic Perfomance	
Max SPL Long-term	134dB
Max SPL Peak	140dB
-3dB Response	100Hz to 22kHz
-10dB Response	85Hz to 30kHz
-3dB Response (Full Range mode)	65Hz to 22kHz
Crossover Point	100Hz, 450Hz, 2.2kHz
High Frequency Section	
Acoustic Design	Horn Loaded
High Horn Coverage Horizontal / Vertical	110° x 40°
High Frequency Amplifier Requirement	100W (VHD200 amp.)
Throat Exit Diameter / Diaphragm Size	1.4" / 3.0"
Diaphragm Material	Nitride Titanium
Magnet Type	Neodymium
Mid Range Section	
Acoustic Design	Horn Loaded
Mid Horn Coverage Horizontal / Vertical	110° x 40°
Midrange Amplifier Requirement	300W (VHD2000 amp.)
Woofer Size / Voice Coil Diameter / Design	8" / 3.0" / Trans Coil
Diaphragm Material	Epoxy Reinforced Cellulose
Magnet Type	Neodymium
Mid-Bass Section	
Acoustic Design	Horn Loaded
Mid-bass Amplifier Requirement	600W (VHD2000 amp.)
Woofer Size / Voice Coil Diameter	2x 12" / 3" / Inside Outside
Diaphragm Material	Epoxy Reinforced Cellulose
Magnet Type	Neodymium
Speaker Input	
Speaker Input	AP6 male
Speaker Output	
Speaker Output	AP6 male
Cabinet	
Cabinet Material	Baltic birch
Handles	4
Color	Black (wear resistant polymer coating)
Physical Dimensions	
Height	660 mm (25.98")
Width	700 mm (27.55")
Depth	495 mm (19.48")
Weight	45 kg (99lbs)
Amplification and control	
Amplification and control	VHD2000

Cover for VHD1.0

part name:
Cover VHD1.0
part number:
KVV 987 157
description:
- heavy duty
- padded

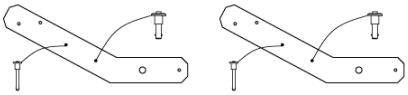
Cart for VHD1.0

part name:
Cart for VHD1.0
part number:
KVV 987 156
description:
- cart for easy transport and hanging VHD1.0
- with hardwood bumpers



VHD1.0 Downfill Arm

part name:
VHD1.0 Downfill Arm
part number:
KVV 987 310



Mid/Hi speaker cable MH15

part name:
Cable MH15
part number:
KVV 987 147
description:
- 6 wire speaker cable
- AP6 connectors - 1,5m (5ft) length
- for Mid/Hi Module connection
- for VHD1.0 Mid/Hi Module daisy-chaining

Mid/Hi speaker cable MH60

part name:
Cable MH60
part number:
KVV 987 125
description:
- 6 wire speaker cable
- AP6 connectors
- 6m (20ft) length
- for Mid/Hi Module hook-up

Mid/Hi speaker cable MH120

part name:
Cable MH120
part number:
KVV 987 126
description:
- 6 wire speaker cable
- AP6 connectors
- 12m (40ft) length
- for Mid/Hi Module hook-up

Mid/Hi speaker cable MH180

part name:
Cable MH180
part number:
KVV 987 127
description:
- 6 wire speaker cable
- AP6 connectors
- 18m (60ft) length
- for Mid/Hi Module hook-up

Introduction

This manual is presented by KV2 Audio, to enable the clear and precise instructions for the safe practice and execution, suspension and general rigging of the VHD Loudspeaker products, using the **VHD FLYBAR** system.
It is vitally important that operators and users familiarize themselves with all of the components, parts, products and safety instructions, as described and indicated within this document, before attempting any over-head suspension, flying and rigging.

The VHD Loudspeaker enclosures are designed with integral suspension points to facilitate secure flying and rigging, providing that no modifications or external parts are substituted, and that all instructions are adhered to at all times.

KV2 Audio s.r.o operates a continuing process policy of attaining and improving standards.
This means that instructions and methods may be subject to change without notification, and it is the sole responsibility of the operator/user to check for any updated information regarding safe flying procedures whether locally or internationally.

Warning - Safety Rigging

There are accepted **'General Rigging Practices'** appropriate to the entertainment industry and this Document aims to encapsulate them specifically to the safe suspension of the KV2 VHD Loudspeaker systems described here.
It is extremely vital and important that only personnel whom have the qualifications and certificates, prior knowledge and experience of rigging techniques, attempt the execution of any overhead suspension of KV2 products.

All advice and instructions expressed and stated within this document, are based upon the highest engineering data available at the time of publication, from within the Country of manufacture, with regards to materials and general practice techniques.
Specifications are subject to change, due to constant testing, product updates and renements and R&D.

'General Rigging Practices' means that Regulations and requirements are possibly subject to alterations in different countries and may be superseded locally.

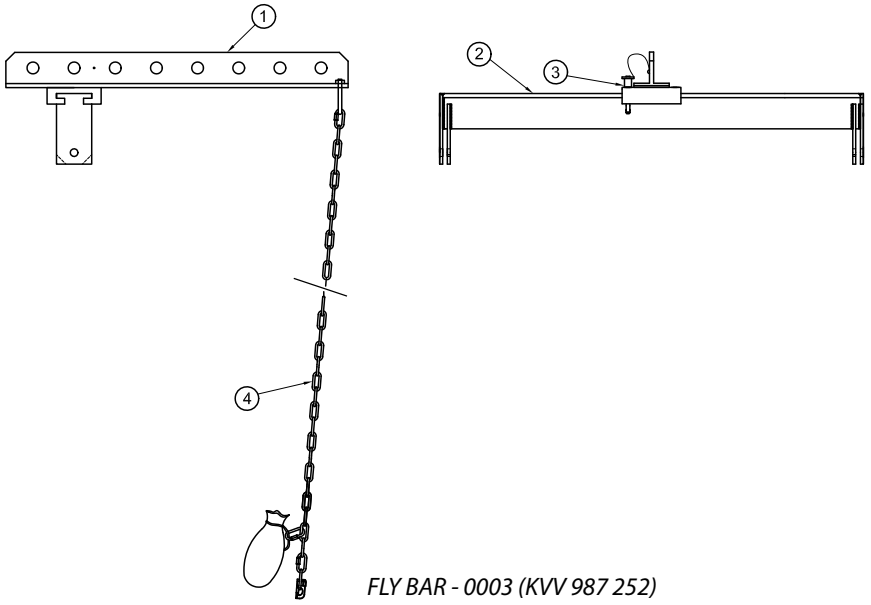
KV2 Audio, as such is not responsible for the safety of any suspension, flying over-head of all specific KV2 Audio Loudspeaker products, or Rigging configurations as executed in practice by users.

It is expressly the sole responsibility of the user to ensure that at all times any KV2 Audio product or system is suspended and rigged in accordance with current International and local regulations.

All non KV2 Audio products such as hoists, clamps, wires, truss, supports used ,or required to suspend KV2 Audio Loudspeaker systems are the sole responsibility of the user.

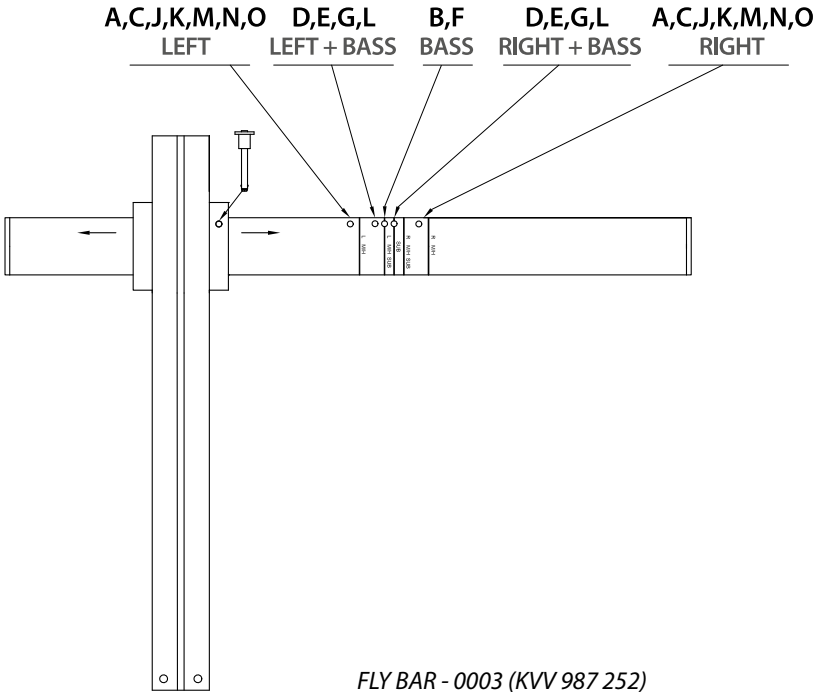
Parts & Components

The **VHD FLYBAR** is a complete system to allow the safe suspension of single, double and multiple components of the VHD series.
The system consists of individual parts that form the basis of attaching loudspeaker modules to the **FLYBAR**, these are identifiable and described below as:



FLY BAR - 0003 (KVV 987 252)

Item	QTY	Description
1	1	PICKPOINT Hanging Arm
2	1	CROSS MEMBER Hanging Bracket
3	1	D6 QUICK RELEASE PIN
4	1	STEEl PULL-BACK ARRESTOR



FLY BAR - 0003 (KVV 987 252)

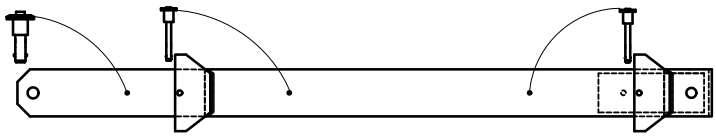
Description

FLY BAR - 0003 (KVV 987 252):

The **CROSSMEMBER** hanging bracket is a flat and folded steel bar with returned 90 degree ends.
This bracket attaches to the **PICKPOINT ARM** by simply sliding into two preset grooves, from left to right and secures smoothly and tightly, thus creating a **T- Bar effect**.
Once both bars are attached and joined, it is a simple case of locking and securing the correct position and location, according to which conguration of VHD enclosures are being suspended, either in aLeft/Right unit, by inserting a single D6 QUICK RELEASE PIN, which is attached via a small shrouded steel tie at the return edge of the PICKPOINT ARM. (See diagram).

VHD2.0 TOP ARM (KVV 987 309):

The VHD2.0 TOP ARM is a flat steel bar with straight ends, a double groove joint at the lower end and prefixed apertures to accept both **D6** and **D12.6 QUICK RELEASE PINS**.
A single bar is used on each side of an enclosure.
The bar employs a total of two angular wedges that are used to 'lock into' the handles on each side of the VHD2.0 enclosure and are then secured by the insertion of a single **D6 QUICK RELEASE PIN**, (Which are attached to the bars via small shrouded steel ties) into each handle.
Once the **VHD2.0 TOP ARMS** are attached to the VHD2.0, they are then simply attached to the **CROSS MEMBER** hanging bracket by inserting a single D12.6 QUICK RELEASE PIN through the top aperture of both of the **VHD2.0 TOP ARMS** and **CROSSMEMBER** hanging bracket.

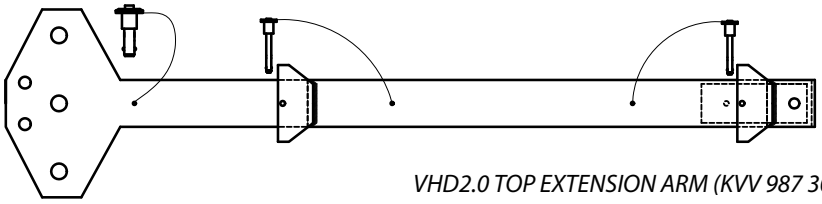


VHD2.0 TOP ARM (KVV 987 309)

VHD2.0 TOP EXTENSION ARM (KVV 987 306):

The VHD2.0 EXTENSION ARM is of the same design and presentation as the **VHD2.0 TOP ARM**, except it is differentiated by being physically longer and employs a total of two angular wedges to allow locking into an attached secondary VHD2.0 and its enclosure handles.
The same method of inserting a single **D6 QUICK RELEASE PIN** into each handle is employed.
The arm has a poly-hex head at the top end of the bar, with prefixed apertures for the insertion of the **D12.6 QUICK RELEASE PINS**, to allow desired splay angles of the secondary VHD2.0 and is attached by the insertion of a single **D12.6 QUICK RELEASE PIN**.

To add extra enclosures to the hang, this method of attachment is repeated.



VHD2.0 TOP EXTENSION ARM (KVV 987 306)

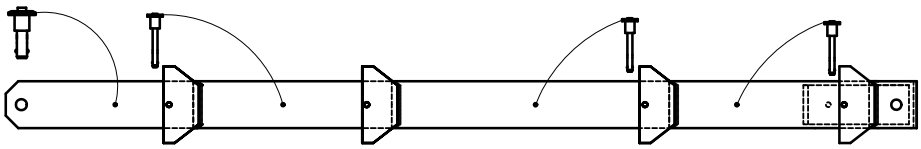
Description

VHD BASS ARM (KVV 987 307):

The VHD BASS ARM is a at steel bar with straight ends, a double groove joint at the lower end and prefixed apertures to accept both **D6** & **D12.6 QUICK RELEASE PINS**.

This bar is used exclusively to suspend a compliment of two VHD Subwoofers and a single bar is used on each side of the two enclosures.

The bar employs a total of four angular wedges that are used to 'lock into' the handles on each side of the VHD Subwoofer enclosure and are secured by the insertion of a single **D6 QUICK RELEASE PIN**, (Which are attached to the bar via small shrouded steel ties) into each handle.



VHD BASS ARM (KVV 987 307)

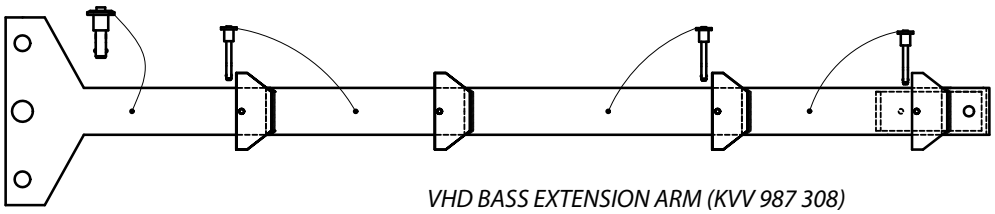
VHD BASS EXTENSION ARM (KVV 987 308):

The VHD SUBWOOFER EXTENSION ARM is of the same design and presentation as the **VHD SUBWOOFER ARM**, except it is differentiated by being physically longer and employs a total of four angular wedges to allow locking into an attached-secondary double hang of VHD Subwoofers and its enclosure handles.

The same method of inserting a single **D6 QUICK RELEASE PIN** into each handle is employed.

The arm has a poly-hex shape head at the top of the bar, with pre-fixed apertures for the insertion of the **D12.6 QUICK RELEASE PINS**, and is attached to the lower end of the VHD SUBWOOFER ARM by sliding into the groove and then being secured by the insertion of a single **D12.6 QUICK RELEASE PIN**.

To add extra enclosures to the hang, this method of attachment is repeated.



VHD BASS EXTENSION ARM (KVV 987 308)

STEEL PULL-BACK ARRESTOR:

A steel chain is used as a pull-back to assist with obtaining desired angles of hang.

Using the pre-set identication coloured links in conjunction with the example diagrams allows quick and easy set-ups.

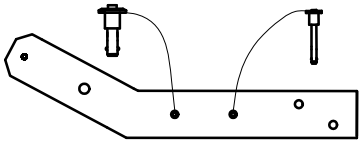
A small overhang chain collector bag is provided to protect and store the chain.

VHD 1.0 DOWNFILL ARM (KVV 987 310):

The **VHD1.0 DOWNFILL ARM** is a short, at pre-angled steel bar that has two pre-fixed apertures at the lower end of the bar to allow different angles of suspension from the enclosure above.

The arm is attached to the VHD1.0 down-fill enclosure by means of two apertures that receive the insertion of two **D6 QUICK RELEASE PINS.**

The top of the bar is attached to the bottom of either the **VHD2.0 TOP ARM** or **BASS/VHD2.0 ARM** by sliding into the groove and inserting a single **D12.6 QUICK RELEASE PIN**.



VHD1.0 DOWNFILL ARM (KVV 987 310)

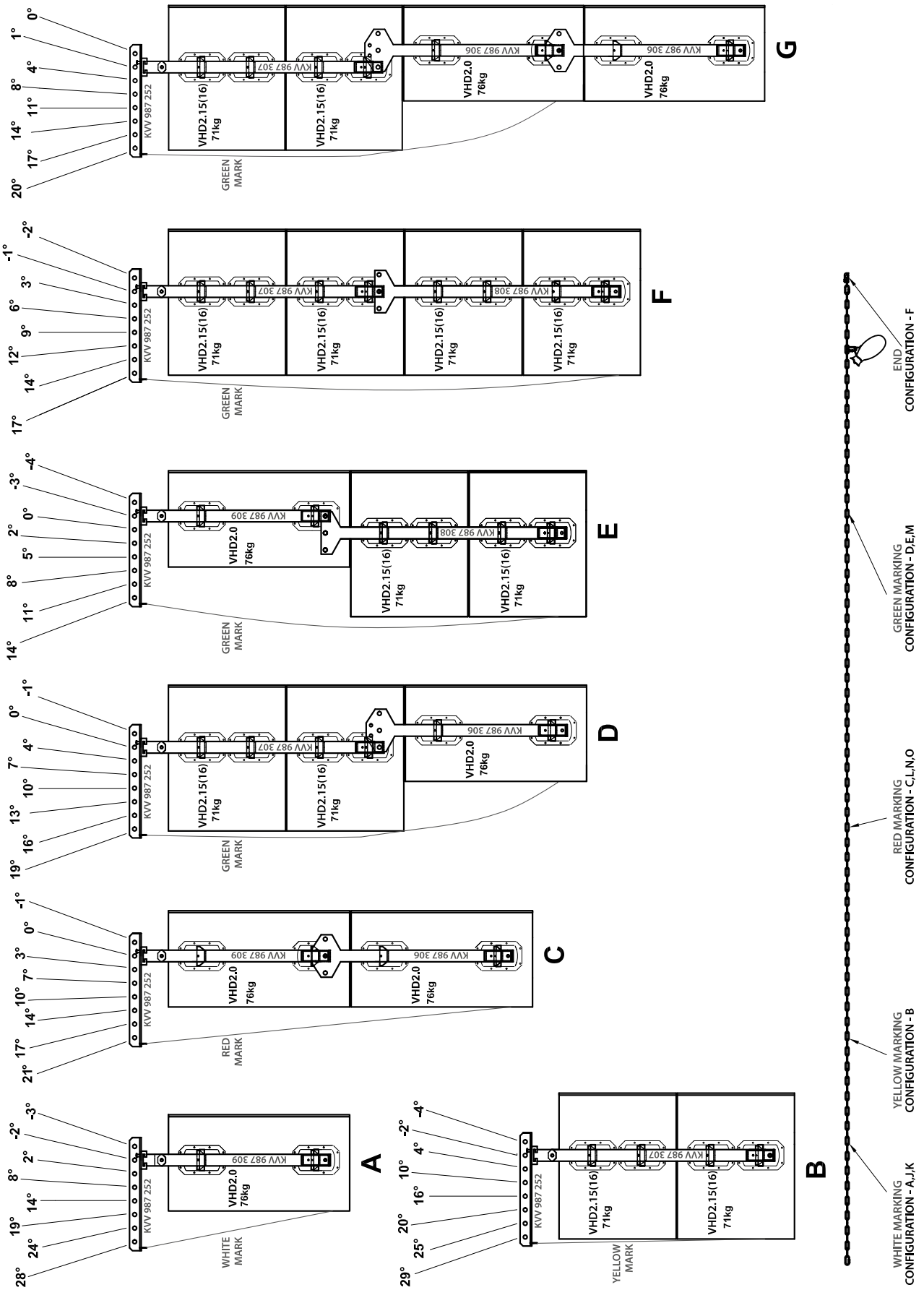
Weights & Stregths

The VHD Flybar System presents several configurations of system design product combinations for suspension and rigging. Each component has to be factored into the total weight being suspended.

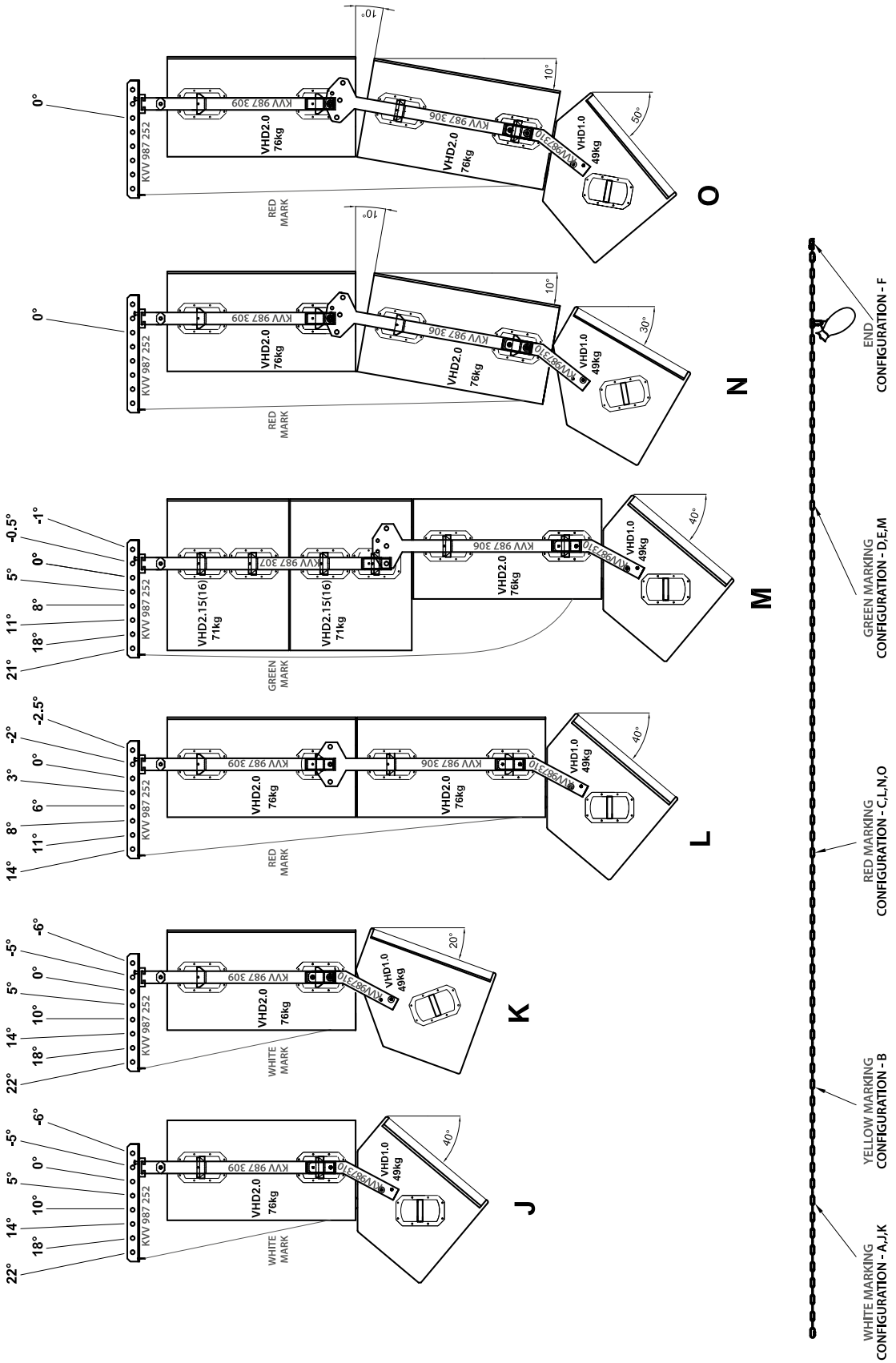
Part	Weight per unit
CROSSMEMBER - Hanging Bracket (part of KVV 987 309)	5,5 kg (12.13lbs)
PICKPOINT - Hanging Arm with Fixation Chain	6 kg (13.23lbs)
VHD2.0 TOP ARM (pair), (KVV 987 309)	6,5 kg (14.33lbs)
VHD2.0 TOP EXTENSION ARM (pair), (KVV 987 306)	7,5 kg (16.53lbs)
VHD BASS ARM (pair), (KVV 987 307)	8,5 kg (18.74lbs)
VHD BASS EXTENSION ARM (pair), (KVV 987 308)	9,5 kg (20.95lbs)
VHD1.0 DOWNFILL ARM (pair), (KVV 987 310)	3 kg (6.62lbs)
TOTAL WEIGHT OF ONE COMPLETE SYSTEM WITH TWO TOP ARMS	18 kg (39.69lbs)
TOTAL WEIGHT OF ONE COMPLETE SYSTEM WITH FOUR TOP ARMS	25,5 kg (56.22lbs)
TOTAL WEIGHT OF ONE COMPLETE SYSTEM WITH TWO TOP ARMS AND TWO SUBWOOFER ARMS	27,5 kg (60.63lbs)
MAXIMUM SWL OF ONE COMPLETE SYSTEM	400 kg (881.84lbs)

FOR CERTIFICATION OF FLYBAR COMPONENTS AND PINS PLEASE VISIT · www.kv2audio.com

Configurations



Configurations



Warranty

Your VHD2.0, VHD1.0, VHD Flyware are covered against defects in material and workmanship.

Refer to your supplier for more details.

Service

In the unlikely event that your VHD2.0, VHD1.0, VHD Flyware develops a problem, it must be returned to an authorized distributor, service centre or shipped directly to our factory. Because of the complexity of the design and the risk of electrical shock, all repairs must be attempted only by qualified technical personnel.

If the unit needs to be shipped back to the factory, it must be sent in its original carton. If improperly packed, the unit may be damaged.

To obtain service, contact your nearest KV2 Audio Service Centre, Distributor or Dealer.

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