



VORTIS 2

EN 54-COMPLIANT HIGH PERFORMANCE

For public address voice alarm solutions



HK AUDIO VORTIS 2

The made-in-Germany VORTIS 2 series is a line of trapezoidal high-performance speakers designed specifically for sophisticated install applications. The entire series is EN 54-24 certified so that every component may be deployed as part of a voice alarm system.

VORTIS 2 is particularly well-suited for applications requiring standards-compliant (voice) alarming as well as high-quality music and speech reinforcement. The VORTIS 2 line delivers high sound pressure levels, ensuring high intelligibility even in environments with high ambient noise levels.

This series of speakers has exactly what it takes to meet the requirements of such integrated applications – a wide selection of models and sizes, remarkably neutral response and variable coverage patterns.

The VORTIS 2 line offers a wide range of choices in housing size and coverage pattern. Three high frequency horns with different dispersion characteristics are available to adjust their directivity to suit the given acoustical requirements.

The horns' mouths are square, so they can also be rotated by 90° to extend their application range.



All VORTIS 2 enclosures are made of birch plywood and painted inside and out with a two-component lacquer. These cabinets are built to last, with specially treated speaker membranes to ensure long life even under challenging environmental conditions.

All units are EN 54-24-certified type B speakers approved for outdoor use.

Equipped with solid steel speaker grilles and mounted with optional wall brackets, these are tough, mechanically robust units that satisfy the criteria set out by the German DIN 18032-3 standard for ball impact resistance.

The speaker cloth covering the protective grille is available in a dirt/water repellent or in a non-flammable variant.





VORTIS 2 cabinets come in standard-issue black and white, but a wide range of custom design options are also available to tailor these speakers to the customer's wishes.

These include a selection of more than 40 colors for housings and grille cloths, milled logos, and color prints on the housings.

In addition to that, an IP 55 rated version (protection from dust and water from jets) is available, too.

A wide range of accessories is available for installing VORTIS 2 speakers on-site, including rotatable tilting U-brackets, anchor points with quick-release pins, and plates for clustering speakers.

EASE and EASE Focus 3 data are available for each model and for each cluster variant, so the speakers' transmission characteristics and the required speech intelligibility can be predicted with industry standard tools.

Select models come with a high-quality 100/70 V transformer built in or can be operated using external transformers.



VORTIS 2 VR2-10810

The VR2-10810 is a professional-grade, full-range speaker system housed in a bass reflex enclosure with a passive crossover, 8" bass/midrange woofer and a 1" high-frequency driver coupled to a CD horn.

It is designed for use in integrated public address systems tasked to render music and speech in high audio quality and provide (voice) alarms in compliance with current international standards.

This speaker is EN 54-24-certified (type B, outdoor use).

VORTIS 2 series speakers ship with one of three different high-frequency horns with the following coverage patterns: 60° x 40°, 90° x 55° and 60°-90° x 55° (asymmetrical horn), indicated in horizontal by vertical degrees. All horns may be rotated 90°.

The VR2-10810's hallmarks include remarkably neutral response, high maximum SPL, uniform dispersion, and constant directivity from 1000 Hz upwards.

Its trapezoidal housing is made of birch plywood covered in a heavy-duty,

two-component textured coating.

The bass/midrange woofer's moisture-proofing on both sides and the cabinet interior's two-component structured lacquer ensure long life even in rugged outdoor conditions.

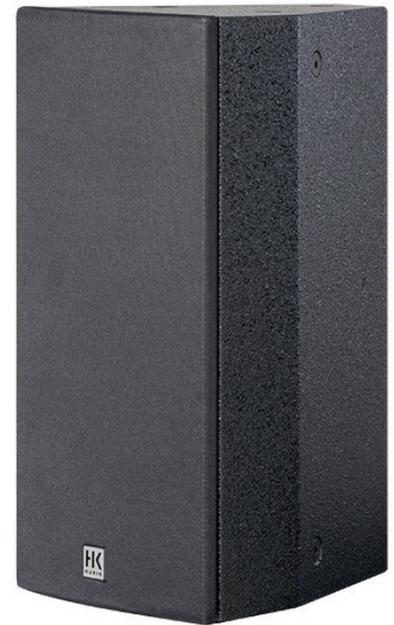
A front grille protects the speaker front in compliance with the German DIN 18032-3 standard for ball impacts.

The acoustically-engineered fabric that serves as the grille cloth is available in a dirt/water repellent or non-flammable variant.

The enclosure and grille cloth come in more than 40 colors.

Three each M10 threaded inserts on the top, bottom and rear panels and two M10 threaded inserts on the side panels serve to connect mounting hardware and fall protection devices such as arrest wires.

For the best audio results, presets are provided for Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS and, for implementation on 3rd party platforms, filter sheets in a tabular format.



Technical Data

Applications:

Voice Alarm Systems:
EN 54-24:2008 certification (type B)

Sports facilities:
Compliant ball impact resistance according to DIN 18032-3

Outdoor or indoor use:
Dirt/water repellent or non-flammable speaker cloth variant available

Mounting accessories:

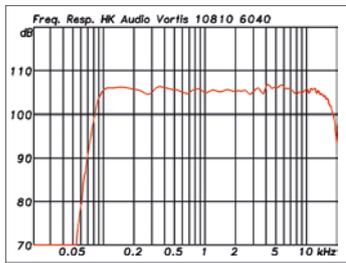
U-bracket:
For use with a rotatable, tilting wall mount

Cluster plates:
For configuring two- and three-cabinet arrays

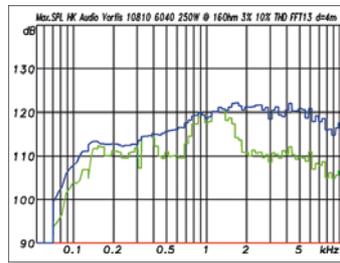
AP10-B:
Anchor point, e.g. for shackles to connect suspension cables/arrest wires

Technical Specifications:

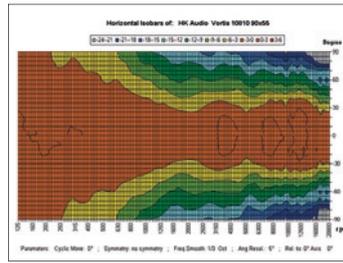
- Two-way system with a built-in passive crossover; crossover frequency 1100 Hz
- Frequency response: 84 Hz - 20 kHz (-10 dB)
- Sensitivity: 95 dB @ 1 W/1 m, full space
- Sensitivity: 83 dB @ 1 W/4 m, full space
- Max. SPL: 118 dB @ 1 m, full space (10% THD/EN 60268-21)
- Max. SPL: 101 dB @ 4 m, full space (rated power/EN 54-24 signal)
- Power handling, nominal: 100 W
- Power handling, program: 200 W
- Impedance: 12 ohms
- Coverage pattern: Varies according to the type of horn
- Connectors: 2x screw terminals with optional touch protection plate



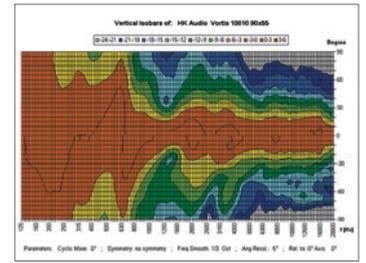
Frequency response



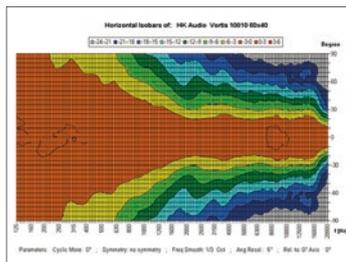
Max. SPL @ 3% and 10% THD (EN 60268-21)



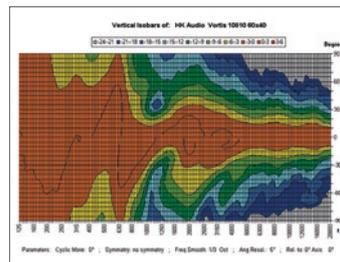
Horn variation 90° x 55° horizontal



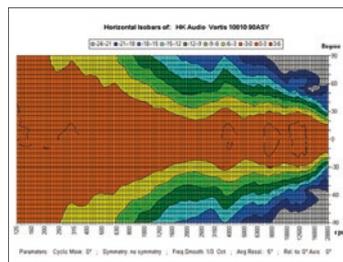
Horn variation 90° x 55° vertical



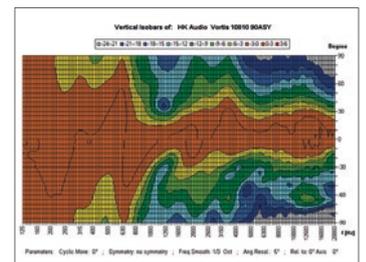
Horn variation 60°x40° horizontal



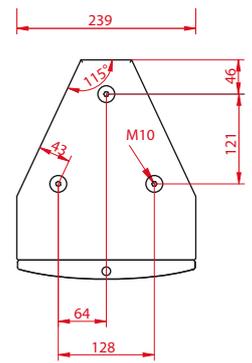
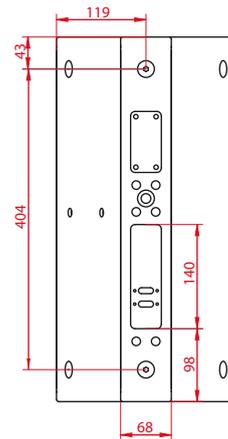
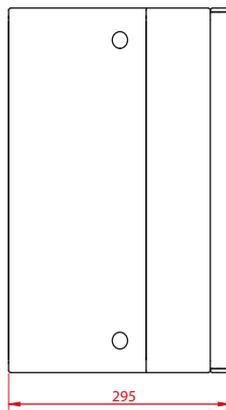
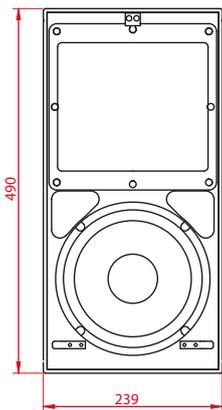
Horn variation 60°x40° vertical



Horn variation 60°-90° x 55° horizontal



Horn variation 60°-90° x 55° vertical



Power handling capacity (nominal)	100 watts
Power handling capacity (program)	200 watts
Power handling capacity (peak)	400 watts
Frequency range (-10 dB)	84 Hz - 20 kHz
Crossover	2-way passive
Crossover frequency	1100 Hz, 2nd order
Sensitivity 1 W @ 1 m, fullspace (100 Hz - 20 kHz)	95 dB
Sensitivity 1 W @ 4 m, fullspace (100 Hz - 20 kHz)	83 dB
Max. SPL @ 1 m, fullspace (10 % THD/ EN 60268-21)	118 dB
Max. SPL (rated power/4 m/EN 54-24 signal)	101 dB
Nominal impedance	12 ohms
Low/mid transducer	1 x 8" with 1,75" voice coil and ferrite magnet
High frequency driver	1 x 1" with 1.4" voice coil with neodymium magnet and ferrofluid

Horn variations (rotatable)	60° x 40°, 90° x 55° and 60° - 90° x 55° (asymmetrical)
Dispersion characteristic	Depends on horn variation
Connections	2x screw terminals with optional touch protection plate
Cabinet	Birch plywood
Filters	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets
Finish	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside
Metal grille with acoustic textile	In over 40 colors, dirt repellent and flame-retarding
Rigging points	13 x M10
Weight	11.7 kg / 25 lb 13 oz
Dimensions (H x D x W) in cm	49 x 23.9 x 29.5
Dimensions (H x D x W) in inches	19.29 x 9.41 x 11.61
Accessories	U-bracket, tilt unit, wall plate, cluster plates and AP-10 B mounting point

VORTIS 2 VR2-10810 100 V

The VR2-10810 100 V is a professional-grade, full-range speaker system housed in a bass reflex enclosure with a fully encapsulated 100/70 V transformer, a passive crossover, an 8" bass/midrange woofer and a 1" high-frequency driver coupled to a CD horn.

It is designed for use in integrated, constant-voltage powered public address systems tasked to render music and speech in high audio quality and provide (voice) alarms in compliance with current international standards. Three power taps serve to adjust levels.

This speaker is EN 54-24-certified (type B, outdoor use).

VORTIS 2 series speakers ship with one of three different high-frequency horns with the following coverage patterns: 60° x 40°, 90° x 55° and 60°-90° x 55° (asymmetrical horn), indicated in horizontal by vertical degrees. All horns may be rotated 90°.

The hallmarks of this speaker include remarkably neutral response, high maximum SPL, uniform dispersion, and constant directivity from 1000 Hz upwards.

Its trapezoidal housing is made of birch plywood covered in a heavy-duty, two-component structured lacquer.

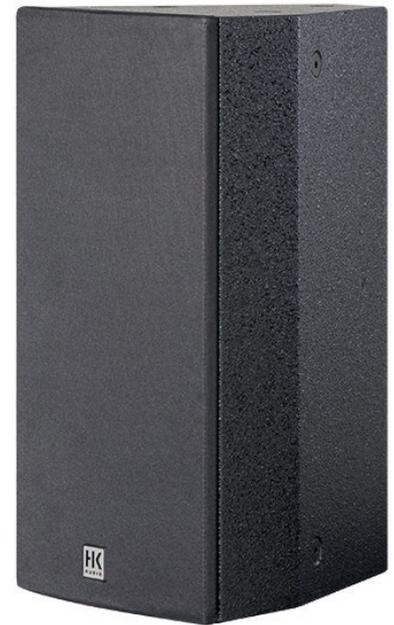
The bass/midrange woofer's moisture-proofing on both sides and the cabinet interior's two-component coating ensure long life even in rugged outdoor conditions.

A front grille protects the speaker front in compliance with the German DIN 18032-3 standard for ball impacts. The acoustically-engineered fabric that serves as the grille cloth is available in a dirt/water repellent or non-flammable variant.

The enclosure and grille cloth come in more than 40 colors.

Three each M10 threaded inserts on the top, bottom and rear panels and two M10 threaded inserts on the side panels serve to connect mounting hardware and fall protection devices such as arrest wires.

For the best audio results, presets are provided for Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS and, for implementation on 3rd party platforms, filter sheets in a tabular format.



Technical Data

Applications:

Voice Alarm Systems:
EN 54-24:2008 certification (type B)

Sports facilities:
Compliant ball impact resistance according to DIN 18032-3

Outdoor or indoor use:
Dirt/water repellent or non-flammable speaker cloth variant available

Mounting accessories:

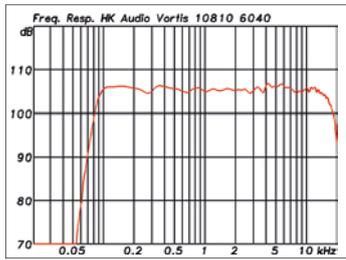
U-bracket:
For use with a rotatable, tilting wall mount

Cluster plates:
For configuring two- and three-cabinet arrays

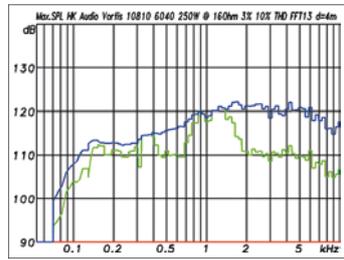
AP10-B:
Anchor point, e.g. for shackles to connect suspension cables/arrest wires

Technical Specifications:

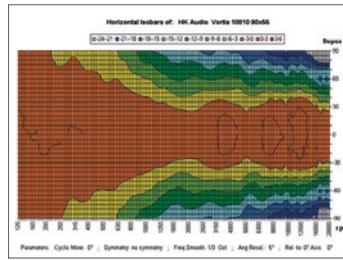
- Two-way system with a built-in passive crossover; crossover frequency 1100 Hz
- Frequency response: 84 Hz - 20 kHz (-10 dB)
- Sensitivity: 112 dB @ 50 W/1 m, full space
- Sensitivity: 100 dB @ 50 W/4 m, full space
- Max. SPL: 112 dB @ 1 m, full space (10% THD/EN 60268-21))
- Max. SPL: 101 dB @ 4 m, full space (50 W-tap/EN 54-24 signal)
- Power handling, nominal: 50 W/25 W/12.5 W
- Impedance: 100 ohms @ 50 W; 200 ohms @ 25 W; 400 ohms @ 12.5 W
- Coverage pattern: Varies according to the type of horn
- Connectors: 2x screw terminals with optional touch protection plater and three selectable power taps



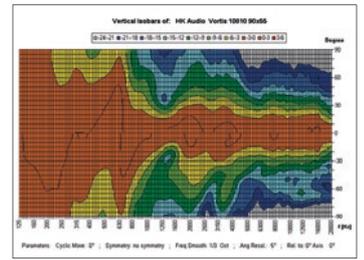
Frequency response



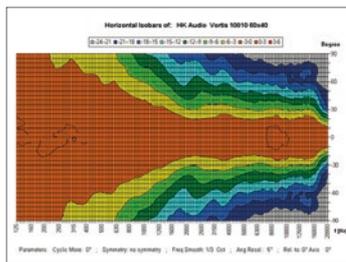
Max. SPL @ 3% and 10% THD (EN 60268-21)



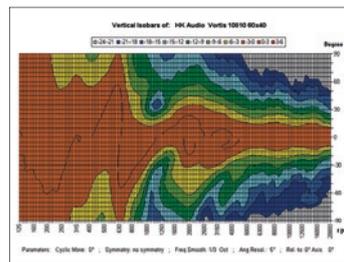
Horn variation 90° x 55° horizontal



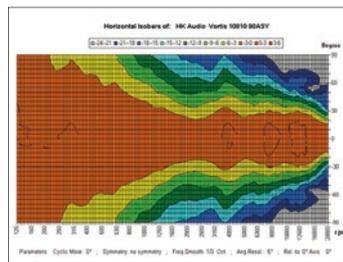
Horn variation 90° x 55° vertical



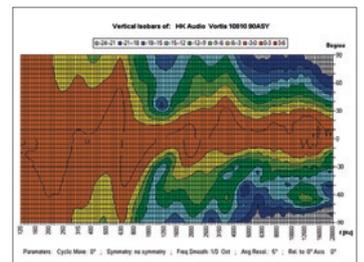
Horn variation 60° x 40° horizontal



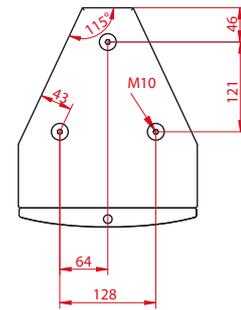
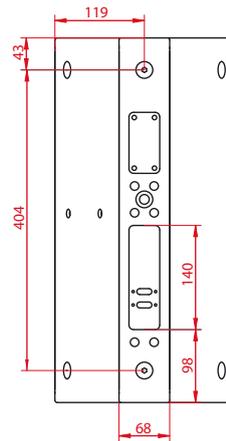
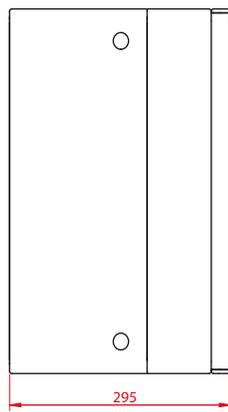
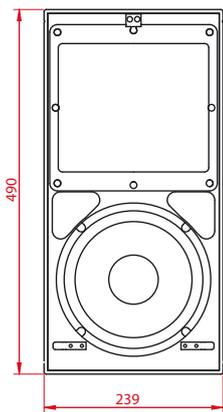
Horn variation 60° x 40° vertical



Horn variation 60°-90° x 55° horizontal



Horn variation 60°-90° x 55° vertical



Power handling capacity (tap 1 @ 100 V)	50 watts
Power handling capacity (tap 2 @ 100 V)	25 watts
Power handling capacity (tap 3 @ 100 V)	12.5 watts
Frequency range (-10 dB)	84 Hz - 20 kHz
Crossover	2-way passive
Crossover frequency	1100 Hz, 2nd order
Sensitivity 50 W @ 1 m, fullspace (100 Hz - 20 kHz)	112 dB
Sensitivity 50 W @ 4 m, fullspace (100 Hz - 20 kHz)	100 dB
Max. SPL @ 1 m, fullspace (10 % THD/ EN 60268-21)	112 dB
Max. SPL (rated power/4 m/EN 54-24 signal)	101 dB
Nominal impedance (depending on tap)	100 ohms, 200 ohms, or 400 ohms
Low/mid transducer	1 x 8" with 1.75" voice coil and ferrite magnet
High frequency driver	1 x 1" with 1.4" voice coil with neodymium magnet and ferrofluid

Horn variations (rotatable)	60° x 40°, 90° x 55° and 60°- 90° x 55° (asymmetrical)
Dispersion characteristic	Depends on horn variation
Connections	2x screw terminals with optional touch protection plate
Cabinet	Birch plywood
Filters	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets
Finish	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside
Metal grille with acoustic textile	In over 40 colors, dirt repellent and flame-retarding
Rigging points	13 x M10
Weight	12.8 kg / 28 lb 4 oz
Dimensions (H x D x W) in cm	49 x 23.9 x 29.5
Dimensions (H x D x W) in inches	19.29 x 9.41 x 11.61
Accessories	U-bracket, tilt unit, wall plate, cluster plates and AP-10 B mounting point

VORTIS 2 VR2-11210

The VR2-11210 is a professional-grade, full-range speaker system housed in a bass reflex enclosure with a passive crossover, 12" bass/midrange woofer and a 1" high-frequency driver coupled to a CD horn.

It is designed for use in integrated public address systems tasked to render music and speech in high audio quality and provide (voice) alarms in compliance with current international standards.

This speaker is EN 54-24-certified (type B, outdoor use).

VORTIS 2 series speakers ship with one of three different high-frequency horns with the following coverage patterns:

60° x 40°, 90° x 55° and 60°-90° x 55° (asymmetrical horn), indicated in horizontal by vertical degrees. All horns may be rotated 90°.

The VR2-11210's hallmarks include remarkably neutral response, high maximum SPL, uniform dispersion, and constant directivity from 1000 Hz upwards.

Its trapezoidal housing is made of birch plywood covered in a heavy-duty, two-component structured lacquer.

The bass/midrange woofer's moisture-proofing on both sides and the cabinet interior's two-component coating ensure long life even in rugged outdoor conditions.

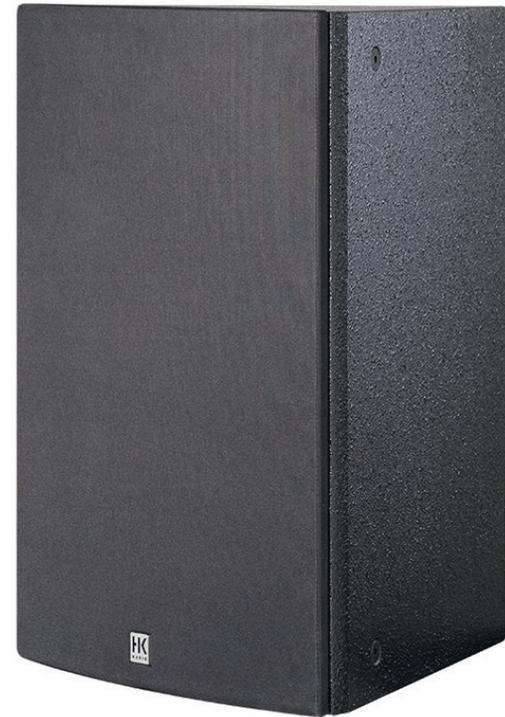
A front grille protects the speaker front in compliance with the German DIN 18032-3 standard for ball impacts.

The acoustically-engineered fabric that serves as the grille cloth is available in a dirt/water repellent or non-flammable variant.

The enclosure and grille cloth come in more than 40 colors.

Three each M10 threaded inserts on the top, bottom and rear panels and two M10 threaded inserts on the side panels serve to connect mounting hardware and fall protection devices such as arrest wires.

For the best audio results, presets are provided for Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS and, for implementation on 3rd party platforms, filter sheets in a tabular format.



Technical Data

Applications:

Voice Alarm Systems:
EN 54-24:2008 certification (type B)

Sports facilities:
Compliant ball impact resistance according to DIN 18032-3

Outdoor or indoor use:
Dirt/water repellent or non-flammable speaker cloth variant available

Mounting accessories:

U-bracket:
For use with a rotatable, tilting wall mount

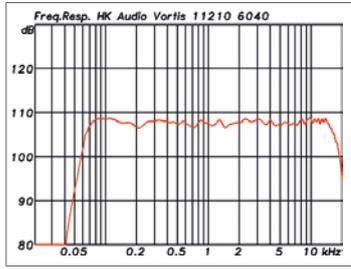
Cluster plates:
For configuring two- and three-cabinet arrays

TB-R:
Tilt bracket with variable angles

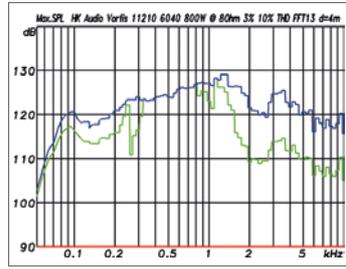
AP10-B:
Anchor point, e.g. for shackles to connect suspension cables/arrest wires

Technical Specifications:

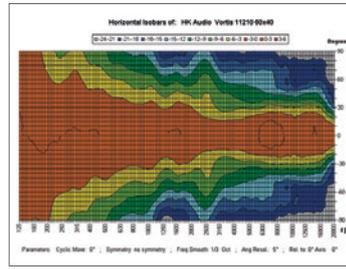
- Two-way system with a built-in passive crossover; crossover frequency 1800 Hz
- Frequency response: 61 Hz - 20 kHz (-10 dB)
- Sensitivity: 98 dB @ 1 W/1 m, full space
- Sensitivity: 85 dB @ 1 W/4 m, full space
- Max. SPL: 128 dB @ 1m, full space (10% THD/ EN 60268-21)
- Max. SPL: 109 dB @ 4 m, full space (rated power/EN 54-24 signal)
- Power handling, nominal: 350 W
- Power handling, program: 700 W
- Impedance: 8 ohms
- Coverage pattern: Varies according to the type of horn
- Connectors: 2x screw terminals with optional touch protection plate



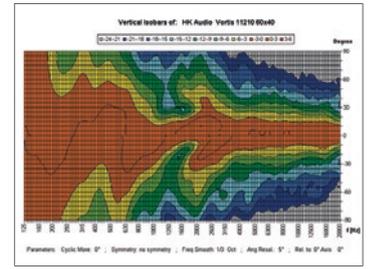
Frequency response



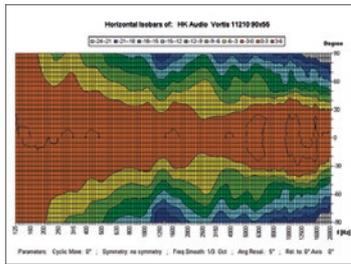
Max. SPL @ 3% and 10% THD (EN 60268-21)



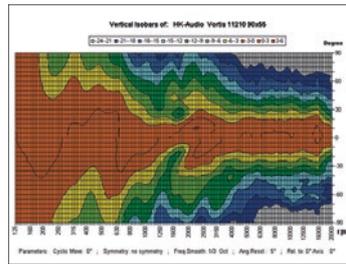
Horn variation 60°x40° horizontal



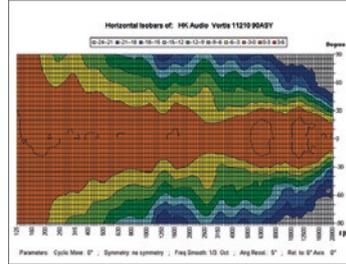
Horn variation 60°x40° vertical



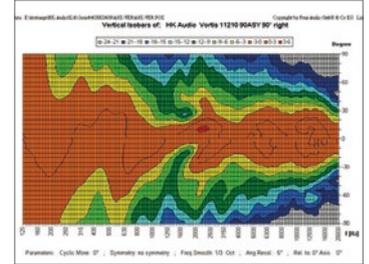
Horn variation 90° x 55° horizontal



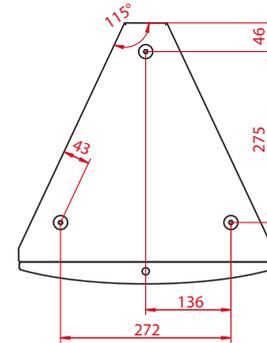
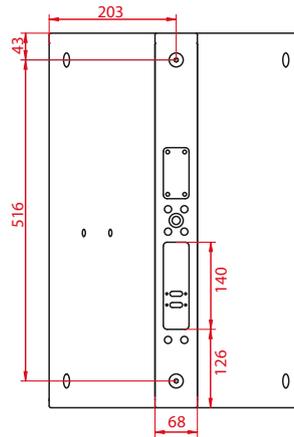
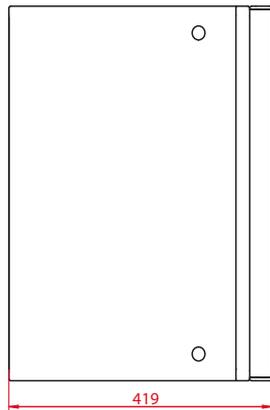
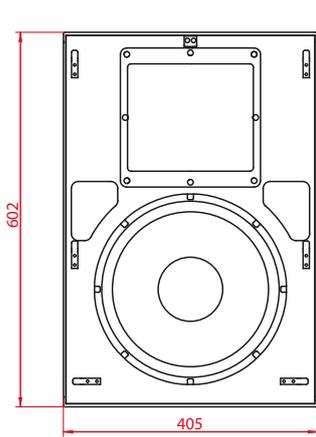
Horn variation 90° x 55° vertical



Horn variation 60°-90° x 55° horizontal



Horn variation 60°-90° x 55° vertical



Power handling capacity (nominal)	350 watts
Power handling capacity (program)	700 watts
Power handling capacity (peak)	1400 watts
Frequency range (-10 dB)	61 Hz - 20 kHz
Crossover	2-way passive
Crossover frequency	1800 Hz, 2nd order
Sensitivity 1 W @ 1 m, fullspace (100 Hz - 20 kHz)	98 dB
Sensitivity 1 W @ 4 m, fullspace (100 Hz - 20 kHz)	85 dB
Max. SPL @ 1 m, fullspace (10% THD/ EN 60268-21)	128 dB
Max. SPL (rated power/4 m/EN 54-24 signal)	109 dB
Nominal impedance	8 ohms
Low/mid transducer	1 x 12" with 3" voice coil and neodymium magnet
High frequency driver	1 x 1" with 1.4" voice coil with neodymium magnet and ferrofluid

Horn variations (rotatable)	60° x 40°, 90° x 55° and 60°- 90° x 55° (asymmetrical)
Dispersion characteristic	Depends on horn variation
Connections	2x screw terminals with optional touch protection plate
Cabinet	Birch plywood
Filters	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets
Finish	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside
Metal grille with acoustic textile	In over 40 colors, dirt repellent and flame-retarding
Rigging points	13 x M10
Weight	20.6 kg / 45 lb 6.6 oz
Dimensions (H x D x W) in cm	60.2 x 40.5 x 41.9
Dimensions (H x D x W) in inches	23.7 x 15.95 x 16.5
Accessories	U-bracket, tilt unit, wall plate, cluster plates and AP-10 B mounting point

VORTIS 2 VR2-11214

The VR2-11214 is a professional-grade, full-range speaker system housed in a bass reflex enclosure with a passive crossover, 12" bass/midrange woofer and a 1.4" high-frequency driver coupled to a CD horn.

It is designed for use in integrated public address systems tasked to render music and speech in high audio quality and provide (voice) alarms in compliance with current international standards.

This speaker is EN 54-24-certified (type B, outdoor use).

VORTIS 2 series speakers ship with one of three different high-frequency horns with the following coverage patterns:

60° x 40°, 90° x 55° and 60°-90° x 55° (asymmetrical horn), indicated in horizontal by vertical degrees. All horns may be rotated 90°.

The VR2-11214's hallmarks include remarkably neutral response, high maximum SPL, uniform dispersion, and constant directivity from 800 Hz upwards.

Its trapezoidal housing is made of birch plywood covered in a heavy-duty, two-component structured lacquer.

The bass/midrange woofer's moisture-proofing on both sides and the cabinet interior's two-component coating ensure long life even in rugged outdoor conditions.

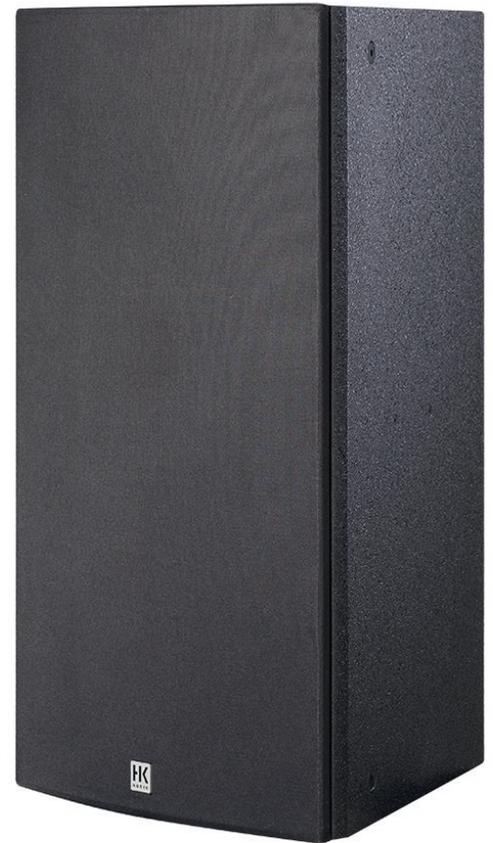
A front grille protects the speaker front in compliance with the German DIN 18032-3 standard for ball impacts.

The acoustically-engineered fabric that serves as the grille cloth is available in a dirt/water repellent or non-flammable variant.

The enclosure and grille cloth come in more than 40 colors.

Three each M10 threaded inserts on the top, bottom and rear panels and two M10 threaded inserts on the side panels serve to connect mounting hardware and fall protection devices such as arrest wires.

For the best audio results, presets are provided for Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS and, for implementation on 3rd party platforms, filter sheets in a tabular format.



Technical Data

Applications:

Voice Alarm Systems:
EN 54-24:2008 certification (type B)

Sports facilities:
Compliant ball impact resistance according to DIN 18032-3

Outdoor or indoor use:
Dirt/water repellent or non-flammable speaker cloth variant available

Mounting accessories:

U-bracket:
For use with a rotatable, tilting wall mount

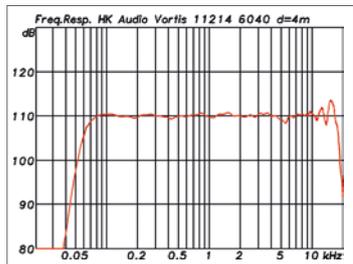
Cluster plates:
For configuring two- and three-cabinet arrays

TB-R:
Tilt bracket with variable angles

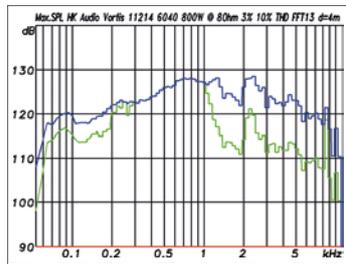
AP10-B:
Anchor point, e.g. for shackles to connect suspension cables/arrest wires

Technical Specifications:

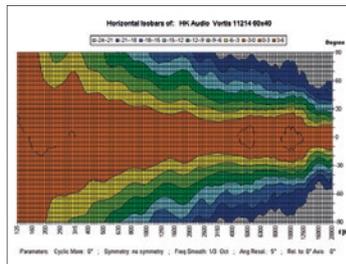
- Two-way system with a built-in passive crossover; crossover frequency 990 Hz
- Frequency response: 62 Hz - 20 kHz (-10 dB)
- Sensitivity: 99 dB @ 1 W/1 m, full space
- Sensitivity: 86 dB @ 1 W/4 m, full space
- Max. SPL: 129 dB @ 1m, full space (10% THD/ EN 60268-21)
- Max. SPL: 110 dB @ 4 m, full space (rated power/EN 54-24 signal)
- Power handling, nominal: 350 W
- Power handling, program: 700 W
- Impedance: 8 ohms
- Coverage pattern: Varies according to the type of horn
- Connectors: 2x screw terminals with optional touch protection plate



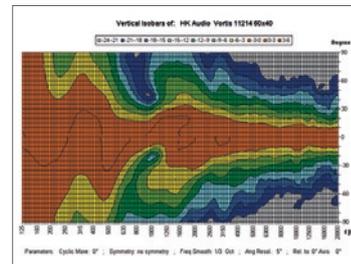
Frequency response



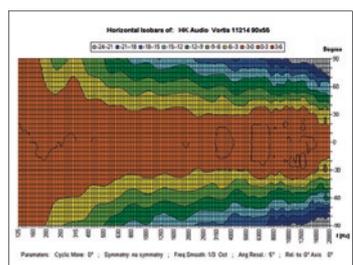
Max. SPL @ 3% and 10% THD (EN 60268-21)



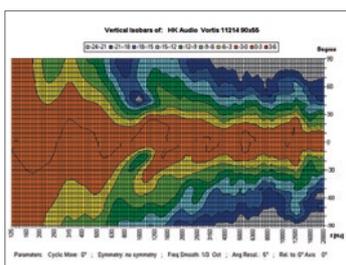
Horn variation 60°x40° horizontal



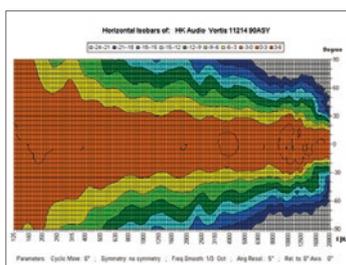
Horn variation 60°x40° vertical



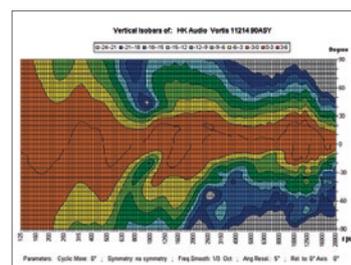
Horn variation 90° x 55° horizontal



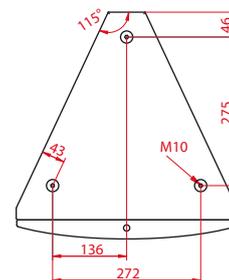
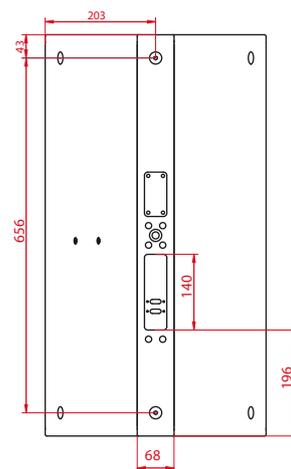
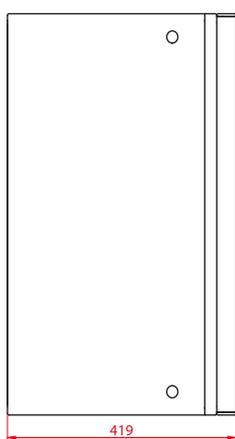
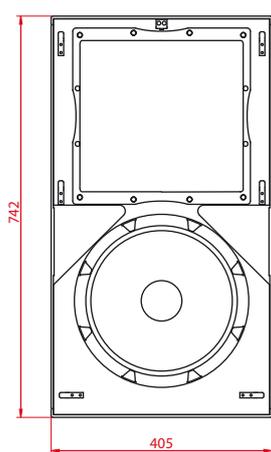
Horn variation 90° x 55° vertical



Horn variation 60°-90° x 55° horizontal



Horn variation 60°-90° x 55° vertical



Power handling capacity (nominal)	350 watts
Power handling capacity (program)	700 watts
Power handling capacity (peak)	1400 watts
Frequency range (-10 dB)	62 Hz - 20 kHz
Crossover	2-way passive
Crossover frequency	990 Hz, 2nd order
Sensitivity 1 W @ 1 m, fullspace (100 Hz - 20 kHz)	99 dB
Sensitivity 1 W @ 4 m, fullspace (100 Hz - 20 kHz)	86 dB
Max. SPL @ 1 m, fullspace (10 % THD/ EN 60268-21)	129 dB
Max. SPL (rated power/4 m/EN 54-24 signal)	110 dB
Nominal impedance	8 ohms
Low/mid transducer	1 x 12" with 3" voice coil and neodymium magnet
High frequency driver	1 x 1.4" with 3" voice coil and ferrite magnet

Horn variations (rotatable)	60° x 40°, 90° x 55° and 60°-90° x 55° (asymmetrical)
Dispersion characteristic	Depends on horn variation
Connections	2x screw terminals with optional touch protection plate
Cabinet	Birch plywood
Filters	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets
Finish	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside
Metal grille with acoustic textile	In over 40 colors, dirt repellent and flame-retarding
Rigging points	13 x M10
Weight	26.8 kg / 59 lb 1.3 oz
Dimensions (H x D x W) in cm	74.2 x 40.5 x 41.9
Dimensions (H x D x W) in inch	29.21 x 15.95 x 16.5
Accessories	U-bracket, tilt unit, wall plate, cluster plates, TB-R T-bracket and AP-10 B mounting point

VORTIS 2 VR2-11510

The VR2-11510 is a professional-grade, full-range speaker system housed in a bass reflex enclosure with a passive crossover, 15" bass/midrange woofer and a 1" high-frequency driver coupled to a CD horn.

It is designed for use in integrated public address systems tasked to render music and speech in high audio quality and provide (voice) alarms in compliance with current international standards.

This speaker is EN 54-24-certified (type B, outdoor use).

VORTIS 2 series speakers ship with one of three different high-frequency horns with the following coverage patterns: 60° x 40°, 90° x 55° and 60°-90° x 55° (asymmetrical horn), indicated in horizontal by vertical degrees. All horns may be rotated 90°.

The VR2-11510's hallmarks include remarkably neutral response, high maximum SPL, uniform dispersion, and constant directivity from 1000 Hz upwards.

Its trapezoidal housing is made of birch plywood covered in a heavy-duty,

two-component structured lacquer.

The bass/midrange woofer's moisture-proofing on both sides and the cabinet interior's two-component coating ensure long life even in rugged outdoor conditions.

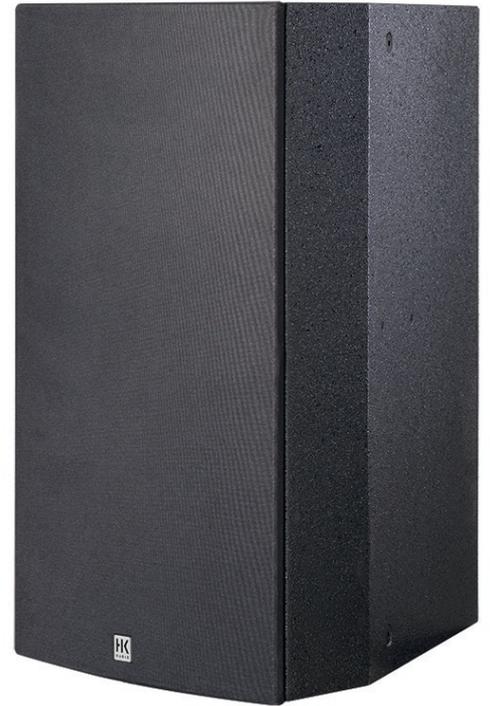
A front grille protects the speaker front in compliance with the German DIN 18032-3 standard for ball impacts.

The acoustically-engineered fabric that serves as the grille cloth is available in a dirt/water repellent or non-flammable variant.

The enclosure and grille cloth come in more than 40 colors.

Three each M10 threaded inserts on the top, bottom and rear panels and two M10 threaded inserts on the side panels serve to connect mounting hardware and fall protection devices such as arrest wires.

For the best audio results, presets are provided for Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS and, for implementation on 3rd party platforms, filter sheets in a tabular format.



Technical Data

Applications:

Voice Alarm Systems:
EN 54-24:2008 certification (type B)

Sports facilities:
Compliant ball impact resistance according to DIN 18032-3

Outdoor or indoor use:
Dirt/water repellent or non-flammable speaker cloth variant available

Mounting accessories:

U-bracket:
For use with a rotatable, tilting wall mount

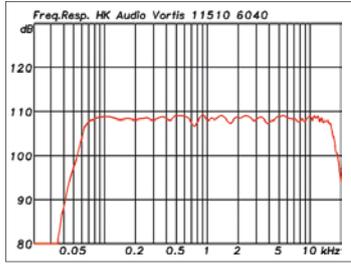
Cluster plates:
For configuring two- and three-cabinet arrays

TB-R:
Tilt bracket with variable angles

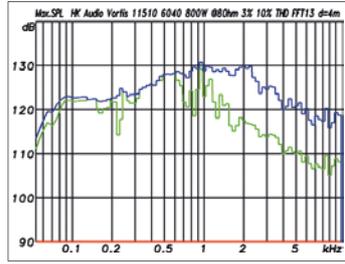
AP10-B:
Anchor point, e.g. for shackles to connect suspension cables/arrest wires

Technical Specifications:

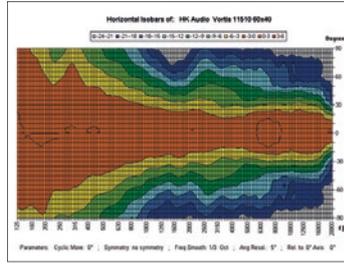
- Two-way system with a built-in passive crossover; crossover frequency 990 Hz
- Frequency response: 60 Hz - 20 kHz (-10 dB)
- Sensitivity: 100 dB @ 1 W/1 m, full space
- Sensitivity: 87 dB @ 1 W/4 m, full space
- Max. SPL: 129 dB @ 1m, full space (10% THD/ EN 60268-21)
- Max. SPL: 110 dB @ 4 m, full space (rated power/EN 54-24 signal)
- Power handling, nominal: 350 W
- Power handling, program: 700 W
- Impedance: 8 ohms
- Coverage pattern: Varies according to the type of horn
- Connectors: 2x screw terminals with optional touch protection plate



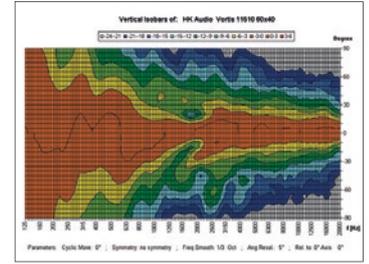
Frequency response



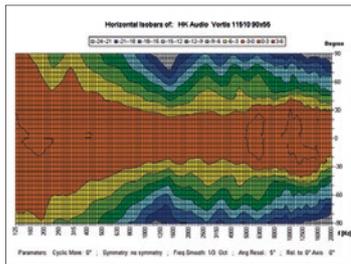
Max. SPL @ 3% and 10% THD (EN 60268-21)



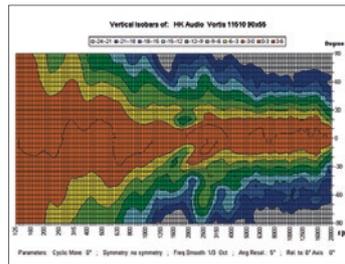
Horn variation 60°x40° horizontal



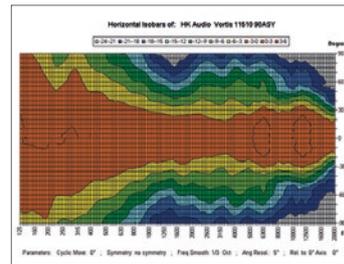
Horn variation 60°x40° vertical



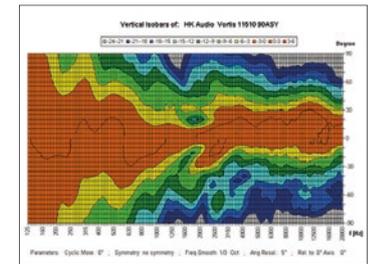
Horn variation 90° x 55° horizontal



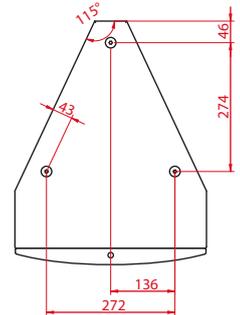
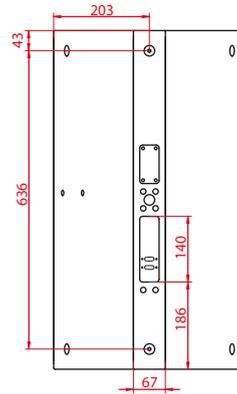
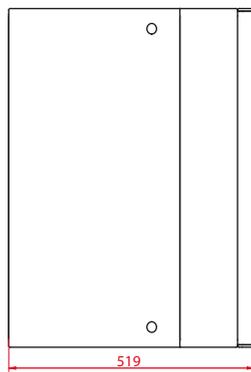
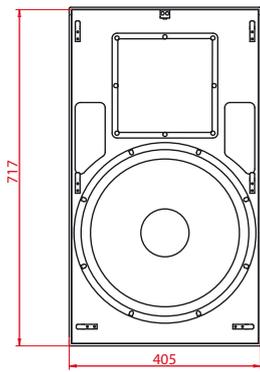
Horn variation 90° x 55° vertical



Horn variation 60°-90° x 55° horizontal



Horn variation 60°-90° x 55° vertical



Power handling capacity (nominal)	350 watts
Power handling capacity (program)	700 watts
Power handling capacity (peak)	1400 watts
Frequency range (-10 dB)	60 Hz - 20 kHz
Crossover	2-way passive
Crossover frequency	1800 Hz, 2nd order
Sensitivity 1 W @ 1 m, fullspace (100 Hz - 20 kHz)	100 dB
Sensitivity 1 W @ 4 m, fullspace (100 Hz - 20 kHz)	87 dB
Max. SPL @ 1 m, fullspace (10 % THD/ EN 60268-21)	129 dB
Max. SPL (rated power/4 m/EN 54-24 signal)	110 dB
Nominal impedance	8 ohms
Low/mid transducer	1 x 15" with 3" voice coil and neodymium magnet
High frequency driver	1 x 1" with 1.4" voice coil with neodymium magnet and ferrofluid

Horn variations (rotatable)	60° x 40°, 90° x 55° and 60° - 90° x 55° (asymmetrical)
Dispersion characteristic	Depends on horn variation
Connections	2x screw terminals with optional touch protection plate
Cabinet	Birch plywood
Filters	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets
Finish	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside
Metal grille with acoustic textile	In over 40 colors, dirt repellent and flame-retarding
Rigging points	13 x M10
Weight	25.1 kg / 55 lb 5.4 oz
Dimensions (H x D x W) in cm	71.7 x 40.5 x 51.9
Dimensions (H x D x W) in inches	28.22 x 15.95 x 20.43
Accessories	U-bracket, tilt unit, wall plate, cluster plates, TB-R T-bracket and AP-10 B mounting point

VORTIS 2 VR2-11514

The VR2-11514 is a professional-grade, full-range speaker system housed in a bass reflex enclosure with a passive crossover, 15" bass/midrange woofer and a 1.4" high-frequency driver coupled to a CD horn.

It is designed for use in integrated public address systems tasked to render music and speech in high audio quality and provide (voice) alarms in compliance with current international standards.

This speaker is EN 54-24-certified (type B, outdoor use).

VORTIS 2 series speakers ship with one of three different high-frequency horns with the following coverage patterns: 60° x 40°, 90° x 55° and 60°-90° x 55° (asymmetrical horn), indicated in horizontal by vertical degrees. All horns may be rotated 90°.

The VR2-11514's hallmarks include remarkably neutral response, high maximum SPL, uniform dispersion, and constant directivity from 800 Hz upwards.

Its trapezoidal housing is made of birch plywood covered in a heavy-duty,

two-component structured lacquer.

The bass/midrange woofer's moisture-proofing on both sides and the cabinet interior's two-component coating ensure long life even in rugged outdoor conditions.

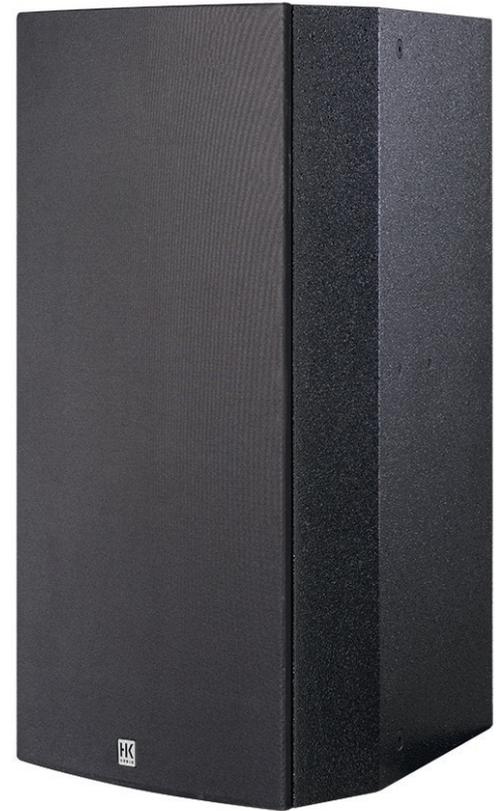
A front grille protects the speaker front in compliance with the German DIN 18032-3 standard for ball impacts.

The acoustically-engineered fabric that serves as the grille cloth is available in a dirt/water repellent or non-flammable variant.

The enclosure and grille cloth come in more than 40 colors.

Three each M10 threaded inserts on the top, bottom and rear panels and two M10 threaded inserts on the side panels serve to connect mounting hardware and fall protection devices such as arrest wires.

For the best audio results, presets are provided for Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS and, for implementation on 3rd party platforms, filter sheets in a tabular format.



Technical Data

Applications:

Voice Alarm Systems:
EN 54-24:2008 certification (type B)

Sports facilities:
Compliant ball impact resistance according to DIN 18032-3

Outdoor or indoor use:
Dirt/water repellent or non-flammable speaker cloth variant available

Mounting accessories:

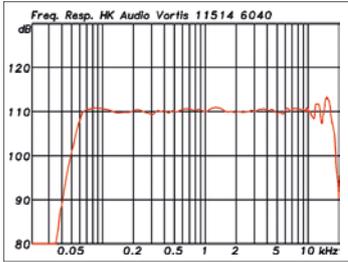
U-bracket:
For use with a rotatable, tilting wall mount

Cluster plates:
For configuring two- and three-cabinet arrays

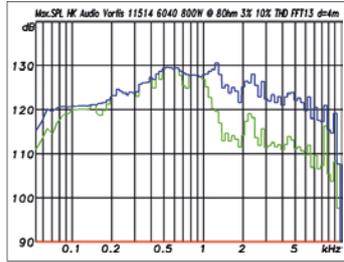
AP10-B:
Anchor point, e.g. for shackles to connect suspension cables/arrest wires

Technical Specifications:

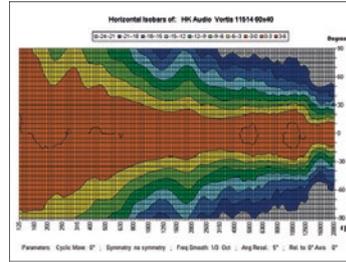
- Two-way system with a built-in passive crossover; corner frequency 990 Hz
- Frequency response: 55 Hz - 20 kHz (-10 dB)
- Sensitivity: 100 dB @ 1 W/1 m, full space
- Sensitivity: 87 dB @ 1 W/4 m, full space
- Max. SPL: 130 dB @ 1m, full space (10% THD/ EN 60268-21)
- Max. SPL: 111 dB @ 4 m, full space (rated power/EN 54-24 signal)
- Power handling, nominal: 350 W
- Power handling, program: 700 W
- Impedance: 8 ohms
- Coverage pattern: Varies according to the type of horn
- Connectors: 2x screw terminals with optional touch protection plate



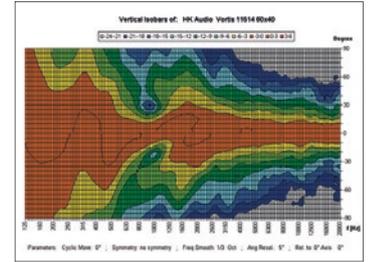
Frequency response



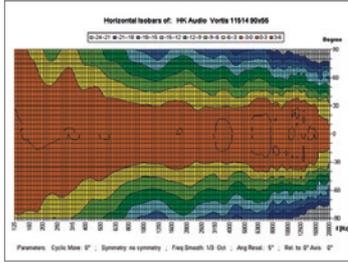
Max. SPL @ 3% and 10% THD (EN 60268-21)



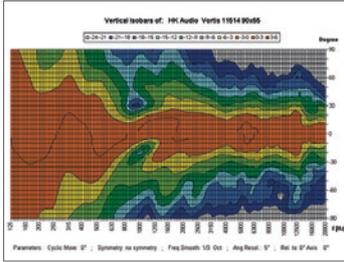
Horn variation 60°x40° horizontal



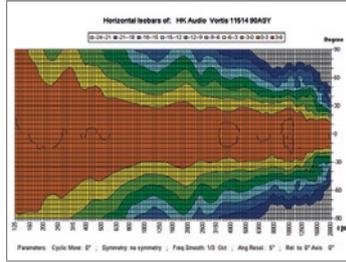
Horn variation 60°x40° vertical



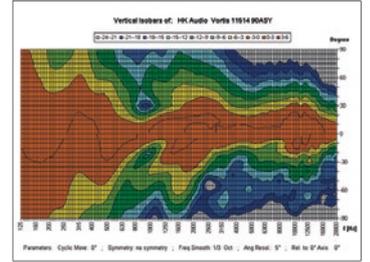
Horn variation 90° x 55° horizontal



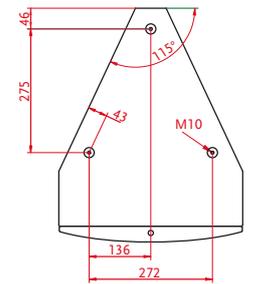
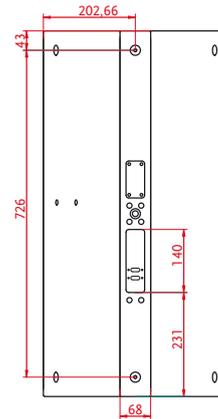
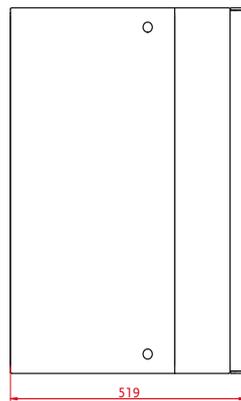
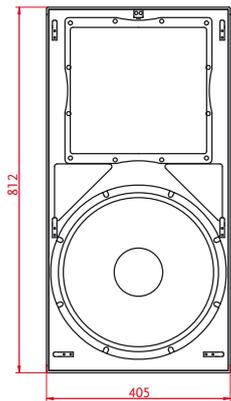
Horn variation 90° x 55° vertical



Horn variation 60°-90° x 55° horizontal



Horn variation 60°-90° x 55° vertical



Power handling capacity (nominal)	350 watts
Power handling capacity (program)	700 watts
Power handling capacity (peak)	1400 watts
Frequency range (-10 dB)	55 Hz - 20 kHz
Crossover	2-way passive
Crossover frequency	990 Hz, 2nd order
Sensitivity 1 W @ 1 m, fullspace (100 Hz - 20 kHz)	100 dB
Sensitivity 1 W @ 4 m, fullspace (100 Hz - 20 kHz)	87 dB
Max. SPL @ 1 m, fullspace (10 % THD/ EN 60268-21)	130 dB
Max. SPL (rated power/4 m/EN 54-24 signal)	111 dB
Nominal impedance	8 ohms
Low/mid transducer	1 x 12" with 3" voice coil and neodymium magnet
High frequency driver	1 x 1.4" with 3" voice coil and ferrite magnet

Horn variations (rotatable)	60° x 40°, 90° x 55° and 60° - 90° x 55° (asymmetrical)
Dispersion characteristic	Depends on horn variation
Connections	2x screw terminals with optional touch protection plate
Cabinet	Birch plywood
Filters	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets
Finish	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside
Metal grille with acoustic textile	In over 40 colors, dirt repellent and flame-retarding
Rigging points	13 x M10
Weight	30.6 kg / 67 lb 7.4 oz
Dimensions (H x D x W) in cm	81.2 x 40.5 x 51.9
Dimensions (H x D x W) in inch	31.96 x 15.95 x 20.43
Accessories	U-bracket, tilt unit, wall plate, cluster plates, TB-R T-bracket and AP-10 B mounting point

VORTIS 2 VR2-21214

The VR2-21214 is a professional-grade, full-range speaker system housed in a bass reflex enclosure with a passive crossover, two 12" bass/midrange woofers and one 1.4" high-frequency driver coupled to a CD horn.

It is designed for use in integrated public address systems tasked to render music and speech in high audio quality and provide (voice) alarms in compliance with current international standards.

This speaker is EN 54-24-certified (type B, outdoor use).

VORTIS 2 series speakers ship with one of three different high-frequency horns with the following coverage patterns: 60° x 40°, 90° x 55° and 60°-90° x 55° (asymmetrical horn), indicated in horizontal by vertical degrees.

All horns may be rotated 90°.

The VR2-21214's hallmarks include remarkably neutral response, high maximum SPL, uniform dispersion, and constant directivity from 600 Hz upwards.

Its trapezoidal housing is made of birch plywood covered in a heavy-duty, two-component structured lacquer.

The bass/midrange woofer's moisture-proofing on both sides and the cabinet interior's two-component coating ensure long life even in rugged outdoor conditions.

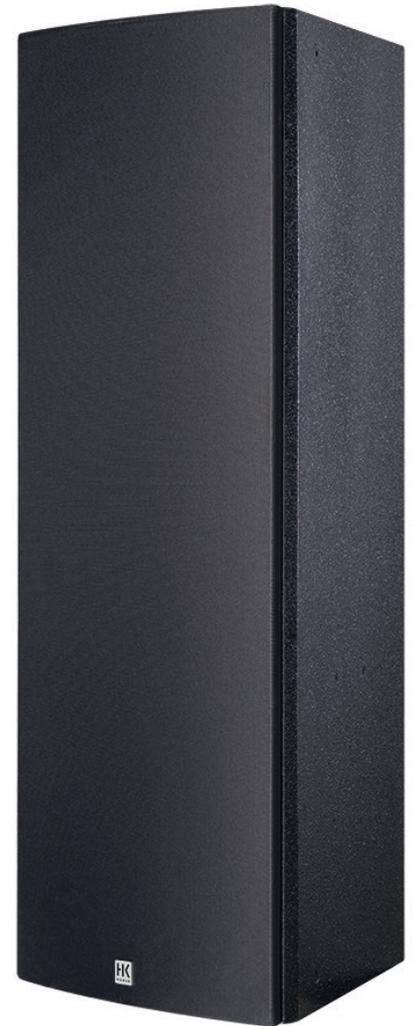
A front grille protects the speaker front in compliance with the German DIN 18032-3 standard for ball impacts.

The acoustically-engineered fabric that serves as the grille cloth is available in a dirt/water repellent or non-flammable variant.

The enclosure and grille cloth come in more than 40 colors.

Three each M10 threaded inserts on the top, bottom and rear panels and two M10 threaded inserts on the side panels serve to connect mounting hardware and fall protection devices such as arrest wires.

For the best audio results, presets are provided for Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS and, for implementation on 3rd party platforms, filter sheets in a tabular format.



Technical Data

Applications:

Voice Alarm Systems:
EN 54-24:2008 certification (type B)

Sports facilities:
Compliant ball impact resistance according to DIN 18032-3

Outdoor or indoor use:
Dirt/water repellent or non-flammable speaker cloth variant available

Mounting accessories:

U-bracket:
For use with a rotatable, tilting wall mount

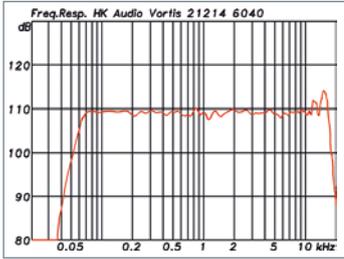
Cluster plates:
For configuring two- and three-cabinet arrays

TB-R:
Tilt bracket with variable angles

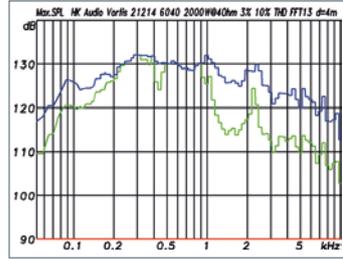
AP10-B:
Anchor point, e.g. for shackles to connect suspension cables/arrest wires

Technical Specifications:

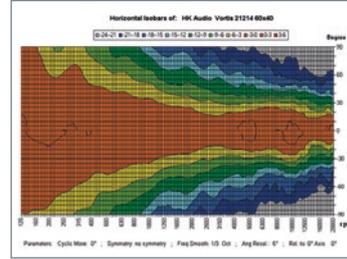
- 2.5-way system with a built-in passive crossover; crossover frequencies 800/1100 Hz.
- Frequency response: 60 Hz - 20 kHz (-10 dB)
- Sensitivity: 101 dB @ 1 W/1 m, full space
- Sensitivity: 88 dB @ 1 W/4 m, full space
- Max. SPL: 131 dB @ 1m, full space (10% THD/EN 60268-21)
- Max. SPL: 112 dB @ 4 m, full space (rated power/EN 54-24 signal)
- Power handling, nominal: 700 W
- Power handling, program: 1400 W
- Impedance: 3 ohms
- Coverage pattern: Varies according to the type of horn
- Connectors: 2x screw terminals with optional touch protection plate



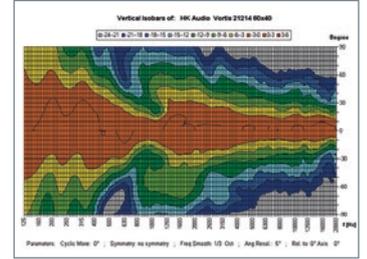
Frequency response



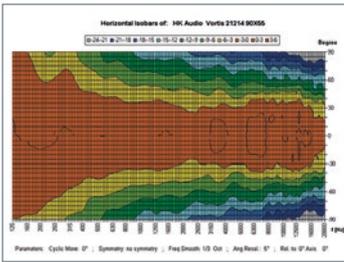
Max. SPL @ 3% and 10% THD (EN 60268-21)



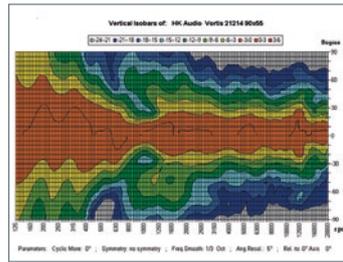
Horn variation 60°x40° horizontal



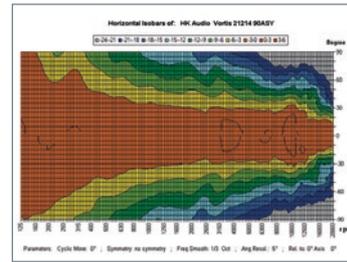
Horn variation 60°x40° vertical



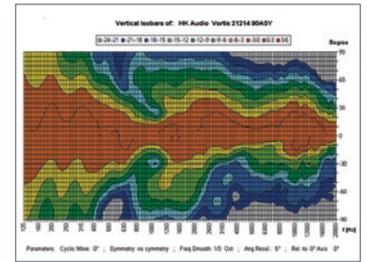
Horn variation 90° x 55° horizontal



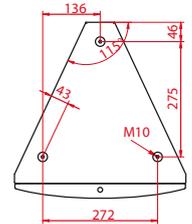
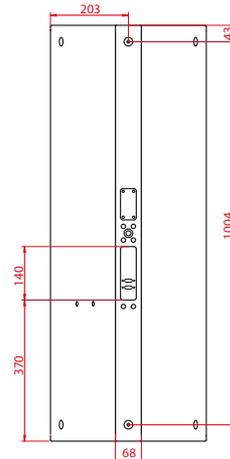
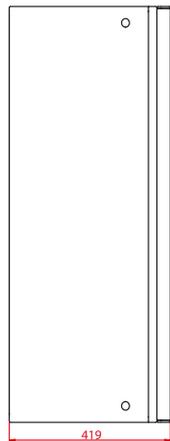
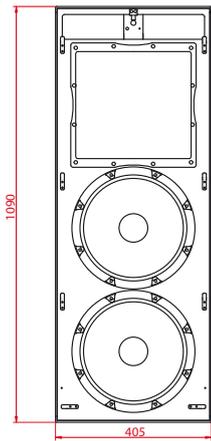
Horn variation 90° x 55° vertical



Horn variation 60°-90° x 55° horizontal



Horn variation 60°-90° x 55° vertical



Power handling capacity (nominal)	700 watts
Power handling capacity (program)	1400 watts
Power handling capacity (peak)	2800 watts
Frequency range (-10 dB)	60 Hz - 20 kHz
Crossover	2.5-way, passive
Crossover frequency	800/1100 Hz, 2nd order
Sensitivity 1 W @ 1 m, fullspace (100 Hz - 20 kHz)	101 dB
Sensitivity 1 W @ 4 m, fullspace (100 Hz - 20 kHz)	88 dB
Max. SPL @ 1 m, fullspace (10 % THD/ EN 60268-21)	131 dB
Max. SPL (rated power/4 m/EN 54-24 signal)	112 dB
Nominal impedance	3 ohms
Low/mid transducer	2 x 12" with 3" voice coil and neodymium magnet
High frequency driver	1 x 1.4" with 3" voice coil and ferrite magnet

Dispersion characteristic	Depends on horn variation
Horn variations (rotatable)	60° x 40°, 90° x 55° and 60°- 90° x 55° (asymmetrical)
Connections	2x screw terminals with optional touch protection plate
Cabinet	Birch plywood
Filters	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets
Finish	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside
Metal grille with acoustic textile	In over 40 colors, dirt repellent and flame-retarding
Rigging points	13 x M10
Weight	36.9 kg / 81 lb 5.6 oz
Dimensions (H x D x W) in cm	109 x 40.5 x 41.9
Dimensions (H x D x W) in inch	42.91 x 15.95 x 16.5
Accessories	U-bracket, tilt unit, wall plate, cluster plates, TB-R T-bracket and AP-10 B mounting point

VORTIS 2

EN 54-COMPLIANT HIGH PERFORMANCE

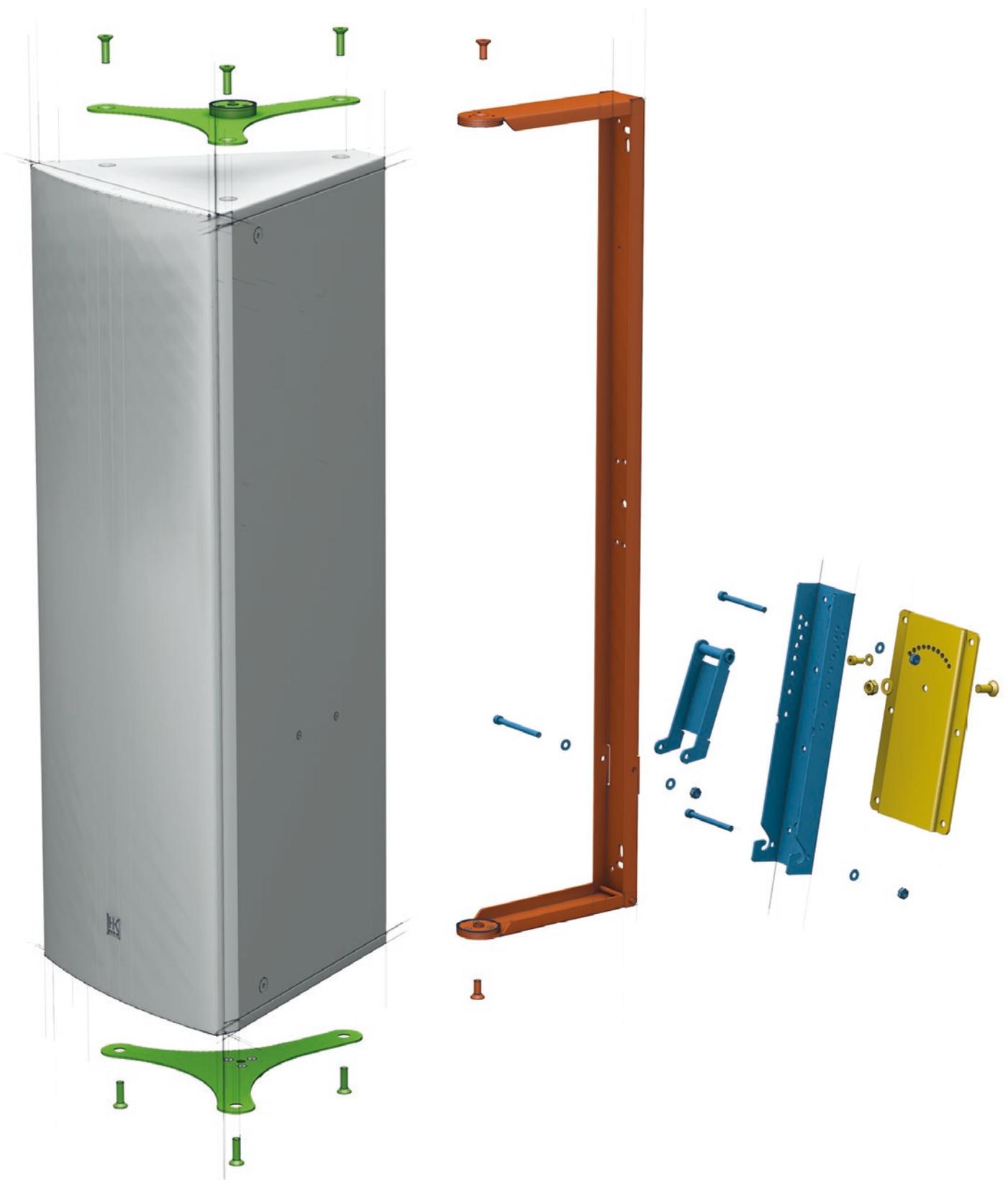


	VR2-10810	VR2-11210
Power handling capacity (nominal)	100 watts	350 watts
Power handling capacity (program)	200 watts	700 watts
Power handling capacity (peak)	400 watts	1400 watts
Frequency range (-10 dB)	84 Hz - 20 kHz	61 Hz - 20 kHz
Crossover	2-way passive	2-way passive
Crossover frequency	1100 Hz, 2nd order	1800 Hz, 2nd order
Sensitivity 1 W @ 1 m, fullspace (100 Hz - 20 kHz)	95 dB	98 dB
Sensitivity 1 W @ 4 m, fullspace (100 Hz - 20 kHz)	83 dB	85 dB
Max. SPL @ 1 m, fullspace (10 % THD/EN 60268-21)	118 dB	128 dB
Max. SPL (rated power/4 m/EN 54-24 signal)	99 dB	109 dB
Nominal impedance	12 ohms	8 ohms
Low/mid transducer	1 x 8" with 1.75" voice coil and ferrite magnet	1 x 12" with 3" voice coil and neodymium magnet
High frequency driver	1 x 1" with 1.4" voice coil with neodymium magnet and ferrofluid	1 x 1" with 1.4" voice coil with neodymium magnet and ferrofluid
Horn variations (rotatable)	60° x 40°, 90° x 55° and 60° - 90° x 55° (asymmetrical)	60° x 40°, 90° x 55° and 60° - 90° x 55° (asymmetrical)
Dispersion characteristic	Depends on horn variation	Depends on horn variation
Connections	2x screw terminals with optional touch protection plate	2x screw terminals with optional touch protection plate
Cabinet	Birch plywood	Birch plywood
Filters	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets
Finish	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside
Metal grille with acoustic textile	In over 40 colors, dirt/water repellent or non-flammable	In over 40 colors, dirt/water repellent or non-flammable
Rigging points	13 x M10	13 x M10
Weight	11.7 kg / 25 lb 13 oz	20.6 kg / 45 lb 6.6 oz
Dimensions (H x D x W) in cm	49 x 23.9 x 29.5	60.2 x 40.5 x 41.9
Dimensions (H x D x W) in inch	19.29 x 9.41 x 11.61	23.7 x 15.95 x 16.5
Accessories	U-bracket, tilt unit, wall plate, cluster plates and AP-10 B mounting point	U-bracket, tilt unit, wall plate, cluster plates, TB-R T-bracket and AP-10 B mounting point



VR2-11214	VR2-11510	VR2-11514	VR2-21214
350 watts	350 watts	350 watts	700 watts
700 watts	700 watts	700 watts	1400 watts
1400 watts	1400 watts	1400 watts	2800 watts
62 Hz - 20 kHz	60 Hz - 20 kHz	55 Hz - 20 kHz	60 Hz - 20 kHz
2-way passive	2-way passive	2-way passive	2.5-way, passive
990 Hz, 2nd order	1800 Hz, 2nd order	990 Hz, 2nd order	800/1100 Hz, 2nd order
99 dB	100 dB	100 dB	101 dB
86 dB	87 dB	87 dB	88 dB
129 dB	129 dB	130 dB	131 dB
110 dB	110 dB	111 dB	112 dB
8 ohms	8 ohms	8 ohms	3 ohms
1 x 12" with 3" voice coil and neodymium magnet	1 x 15" with 3" voice coil and neodymium magnet	1 x 12" with 3" voice coil and neodymium magnet	2 x 12" with 3" voice coil and neodymium magnet
1 x 1.4" with 3" voice coil and ferrite magnet	1 x 1" with 1.4" voice coil with neodymium magnet and ferrofluid	1 x 1.4" with 3" voice coil and ferrite magnet	1 x 1.4" with 3" voice coil and ferrite magnet
60° x 40°, 90° x 55° and 60°- 90° x 55° (asymmetrical)	60° x 40°, 90° x 55° and 60°- 90° x 55° (asymmetrical)	60° x 40°, 90° x 55° and 60°- 90° x 55° (asymmetrical)	60° x 40°, 90° x 55° and 60°- 90° x 55° (asymmetrical)
Depends on horn variation			
2x screw terminals with optional touch protection plate	2x screw terminals with optional touch protection plate	2x screw terminals with optional touch protection plate	2x screw terminals with optional touch protection plate
Birch plywood	Birch plywood	Birch plywood	Birch plywood
Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets	Lab.gruppen IPD/X and Lake, Powersoft Armonia, QSC Q-SYS or filter sheets
2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside	2-component structured lacquer in over 40 colors, cabinet is painted from the in- and outside
In over 40 colors, dirt/water repellent or non-flammable	In over 40 colors, dirt/water repellent or non-flammable	In over 40 colors, dirt/water repellent or non-flammable	In over 40 colors, dirt/water repellent or non-flammable
13 x M10	13 x M10	13 x M10	13 x M10
26.8 kg / 59 lb 1.3 oz	25.1 kg / 55 lb 5.4 oz	30.6 kg / 67 lb 7.4 oz	36.9 kg / 81 lb 5.6 oz
74.2 x 40.5 x 41.9	71.7 x 40.5 x 51.9	81.2 x 40.5 x 51.9	109 x 40.5 x 41.9
29.21 x 15.95 x 16.5	28.22 x 15.95 x 20.43	31.96 x 15.95 x 20.43	42.91 x 15.95 x 16.5
U-bracket, tilt unit, wall plate, cluster plates, TB-R T-bracket and AP-10 B mounting point	U-bracket, tilt unit, wall plate, cluster plates, TB-R T-bracket and AP-10 B mounting point	U-bracket, tilt unit, wall plate, cluster plates, TB-R T-bracket and AP-10 B mounting point	U-bracket, tilt unit, wall plate, cluster plates, TB-R T-bracket and AP-10 B mounting point

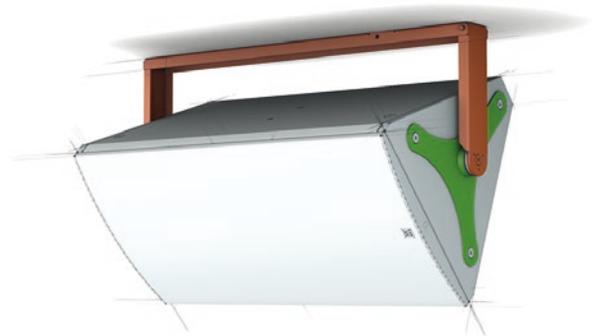
VORTIS 2 WALL-MOUNT ACCESSORIES



The U-bracket comes with a wall-mount plate and a tilt unit serving to install the speaker at any desired angle. The speaker may then be rotated and tilted to aim it towards the audience area with great accuracy.



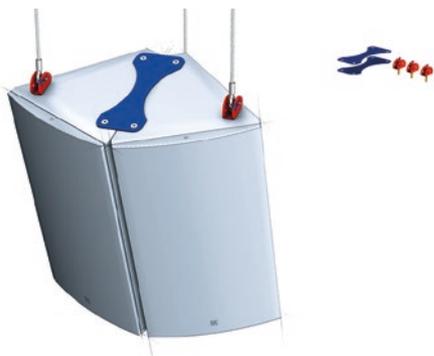
The U-bracket also serves to mount any VORTIS speaker sideways. The high-frequency horn may also be rotated by 90° to adjust the coverage pattern accordingly.



One U-bracket holds up to two VORTIS speakers in a cluster. Extension plates serve to configure different coverage patterns within a cluster.

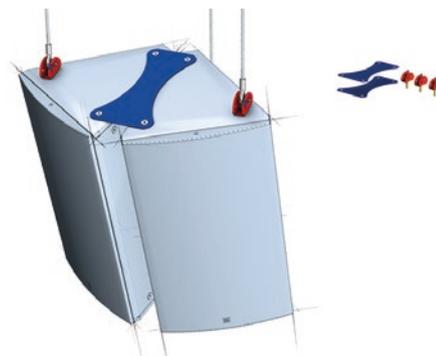


VORTIS 2 WALL-MOUNT ACCESSORIES



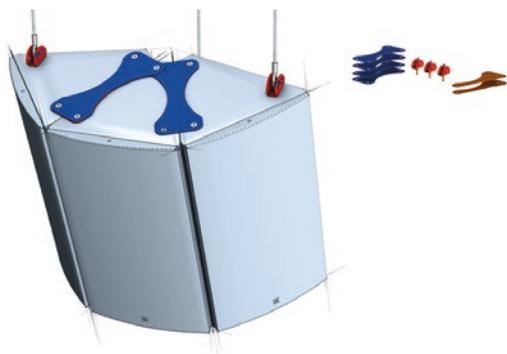
Cluster kit for 100° coverage

This hardware set comes with two cluster plates and three AP10-B anchor points with quick connectors. It fits all VORTIS models. Special accessories are available for the VR-10810.



Cluster kit for 120° coverage

This hardware set comes with two cluster plates and three AP10-B anchor points with quick connectors. It fits all VORTIS models. Special accessories are available for the VR-10810.



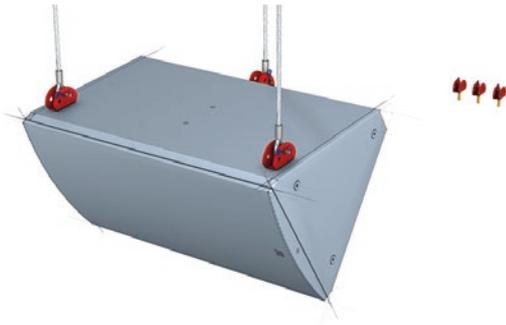
Cluster kit for 150° coverage

This hardware set comes with four cluster plates, two height-adjustment plates, and three AP10-B anchor points with quick connectors. It fits all VORTIS models. Special accessories are available for the VR-10810.



Cluster kit for 180° coverage

This hardware set comes with four cluster plates, two height-adjustment plates, and three AP10-B anchor points with quick connectors. It fits all VORTIS models. Special accessories are available for the VR-10810.



Horizontal-mount cable rigging kit

This hardware set comes with three AP10-B anchor points and quick connectors. The tilt angle may be adjusted freely, depending on the length of the steel cables.



Vertical-mount cable rigging kit

This hardware set comes with three AP10-B anchor points and quick connectors. The tilt angle may be adjusted freely, depending on the length of the steel cables.



TB-R tilt bracket

The tilt bracket serves to freely incline the speaker—that is, adjust its tilt angle. It fits all VORTIS (2) models apart from VR (2) 10810 units. A U-frame adaptor offers a 10 mm hole to attach the cab to trusses and the like. It can be moved freely along the rail using a quick connector and allows for adjustment of the angle. (+5° to -45°, depending on the speaker.)



U-bracket and tilt unit

This U-bracket with a six pick-point connector plate comes in different versions for each VORTIS (2) model. With this bracket and a universal wall mount/tilt unit, the speaker can be aimed accurately in any direction.

	Certified for voice alarm (EN 54-24:2008)
	Certified IP 55 protection class (EN 60529) optionally
	Certified for outdoor use (EN 54-24 type B)
	Certified low and high temperature range (-25° C - 70° C)
	Certified ball impact proof (DIN 18032-3)
	Acoustic textile dirt- /water repellent or non flammable
	Three different HF horns with 60° x 40°, 90° x 55° or 60°-90° x 55° (asymmetrical) dispersion characteristics
	High quality public address
	Select models come with a built-in 100V transformer
	Built-in passive crossover, to be used with controller presets and/or filter sheets
	Simulation data sets for all (cluster) variants available (GLL/CLF)
	Fully customizable with over 40 colors and engravings
	Made in Germany

