

PROPHON

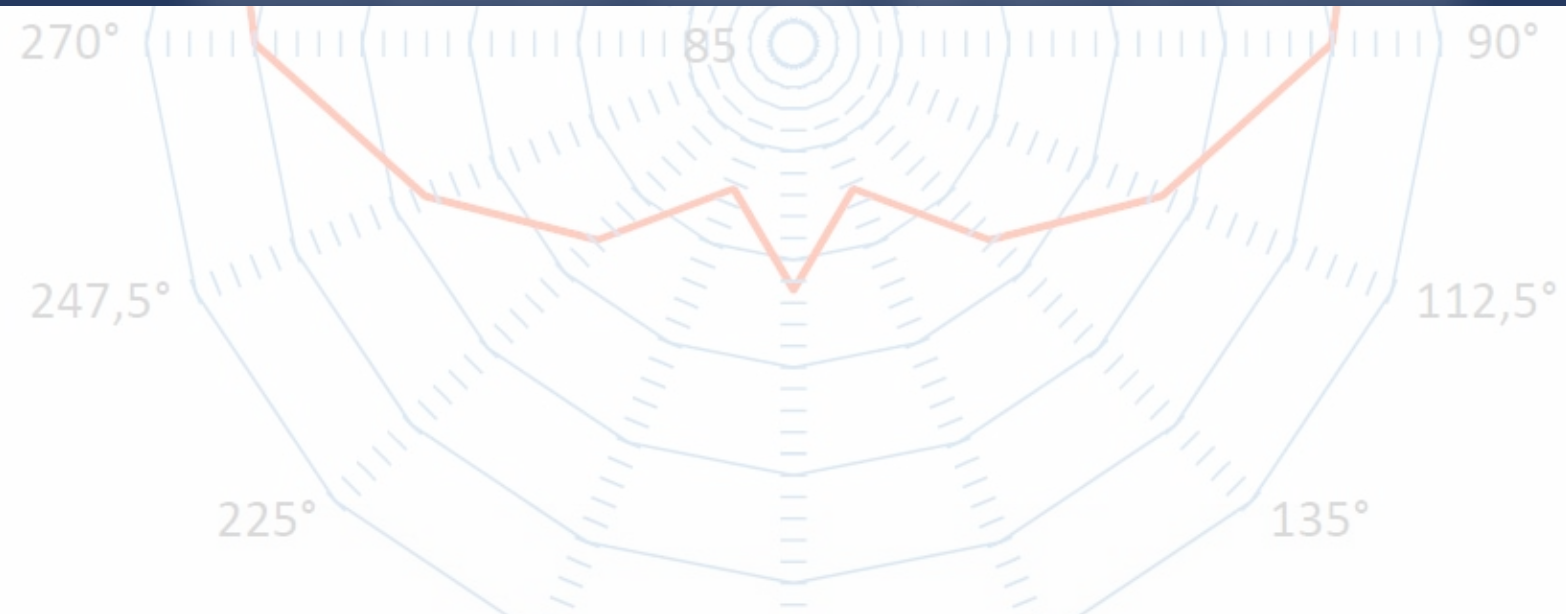
SOUND SYSTEMS



B318HPC

Cardioid 3 x 18" subwoofer

Technical specifications, presentation, applications and measurements.



TECHNICAL SPECIFICATIONS

Model	PROPHON B318HPC
Design	Cardioid 3 x 18" high power subwoofer for controlled and aimable low frequency emission in live performances and for recorded music.
Construction	Two frontloaded 18" woofers mounted in separately tuned bassreflex cabinets, and one backwards facing inverted baffel-mounted 18" woofer for cardioid patter, baffelmounted in tuned vented cabinet. Alignments of the woofers in colaboration with the tuning of the woofers, and carefully calculated algorithms, delay, EQ, and crossover frequencies, results in the cardioid (hypercardioid) dispersion pattern.
Components	3 x High power Neodymium 18" woofers, 4,5" voice coil, with 60 mm. peak-to-peak excursion, double silicone spiders and vented voice coil gap, Aluminium demodulation ring for very low distrortion. RMS power handling: 3 x 1,700W RMS = 5,100W RMS Cont. power handling: 3 x 3,400W cont. = 10,200W cont. Peak power hanlidng: 3 x 6,800W peak = 20,400W peak
Vioco coil	4,5" (116 mm.) voice coil with split winding copper coils for extremely linear behaviour, with 60 mm. peak-to-peak excursion
Sensitivity	103 dB @ 1W / 1m.
Max SPL cont.	146,5 dB @ 1W / 1m. (2Pi)
Max SPL peak	149 dB @ 1W / 1m. (2Pi) <i>calculated</i>
Dimensions	H120 x W600 x D800
Weight	100 kg.
Connectors	2 x Neutrik Speakon STX-series, 50Ampere, 4-pole connector, IP54 Using 1+/1- for 2 x 18" forward facing woofer and 2+/2- for 1 x 18" backward facing woofer
Extra features	4 x handles on each 600x800 side stacking rails / protective rails Castors
Cardioid features	The Prophon B318HPC has been designed, tested and measured to work where most cardioid subwoofers will not, and have better features compared to a lot of our competitors, (see measured Dipol pattens on page 4-5 for comparison.) Most other manufacturers only states that the "cardioid subwoofer" have a -16 dB cardioid effect backwards, without showing any dipol measurements. B318HPC KEY FEATURES <ul style="list-style-type: none"> • Usable cardioid frequency range 31 Hz - 100Hz (optimal range 40 Hz - 80Hz) • Using one or two B318HPC on each side of stage, with same DSP presets. • Can be arranged as close to back-wall as 80 cm. without interfering with the cardioid pattern audibly. • Can be arrange next to walls, resulting in a "mirroring" of the cardioid pattern • +2dB forward SPL gain compared to using a standard 2 x 18" subwoofer. (see frequency responce curve and dipol measurement on page 6)
Amplifiers and DSP's	Powersoft X-series (X4 or X8), Prophon P10000 with DSP480, or any other powerful, high quality amplifier, where the power are not stated in peak. the Powersoft X-series and the Prophon P10000 delivers about 5kW on each channel.
External features	<ul style="list-style-type: none"> • 8 x Handles • Castors • Stacking rails • Fully covering protecting performed steel grilles with minimum air-flow resistance • Protective, fully covering front speakerfoam

The **PROPHON B318HPC**, cardioid high power subwoofer was designed for live performance stages, festivals, and for the tour and rental industry, but also for recorded music such as club events, fixed installations in nightclubs etc.

The very special cardioid design allows for extreme control in the LF-frequencies, where the sound engineer and technical engineer can design and steer the sound to where it is wanted, and also omit it where it is unwanted.

***The possibilities and applications are practically endless!
Here are some examples of applications***

Live performance stages

very often, Live performance stages suffer from high SPL LF-frequencies from the PA stacked next to the stage, looping back into the microphones on the stage, creating indistinct attack, and very often LF feedback loops as a result.

If the Prophon B318HPC cardioid subwoofers are stacked two subwoofer on each side of the stage, you will have a significant reduction of low frequency SPL at 90 degrees in towards the stage, compared to on axis, 0 degrees forward facing towards the audience.

Regular 2x18" subwoofers that are almost completely omnidirectional, meaning that you have about the same SPL at 0 degrees forward, on axis, as 90 degrees inwards towards the stage, the microphones and the band.

Also, depending on the width of the stage, you will have a "hot-spot" (distance between the left and right stacked subwoofers), in the "hot-spot" the wavelength from the left and right stacked subwoofers will most likely peak, resulting in extremely high, unwanted LoFrequency-SPL on stage.

Also the musicians will love the cardioid features, because they will have a much more coherent and audible monitoring experience, whether it beeing from the stage monitors, in-ear or side-fills.

Club music, DJ's and Nightclubs

Even for club music where the DJ have a powerful PA monitoring system, it is a big advantage, because it is much more easy to mix when you hear the DJ monitoring speakers only, not suffer from the FOH main- PA subwoofers, with a slight delay in the base, depending on distance from DJ booth to subwoofers.

With a cardioid subwoofer system from Prophon, the DJ can focus on the mix, and only hearing the direct radiating monitor.

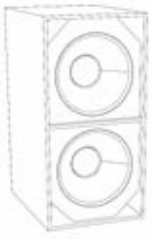
Problems with the neighbours?

In a fixed installation, either in a nightclub or a live stage, Low frequency emission to neighbours are very often a problem, installing cardioid subwoofers can reduce the low frequency emission significantly, you can simply aim away from where the LF-problem occurs.

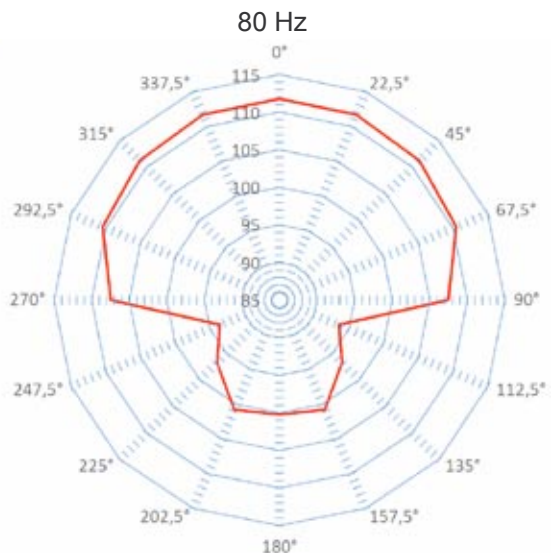
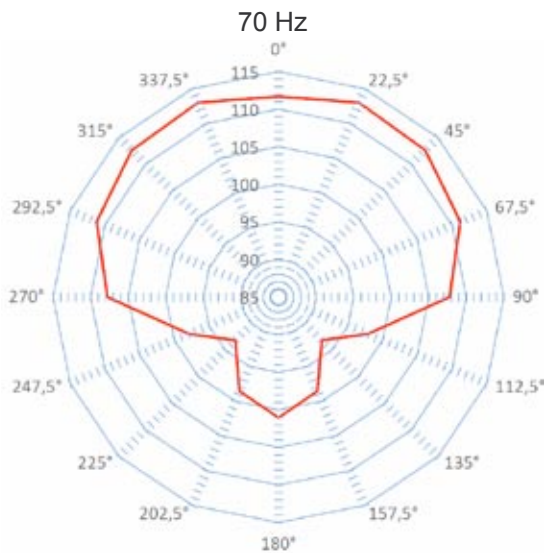
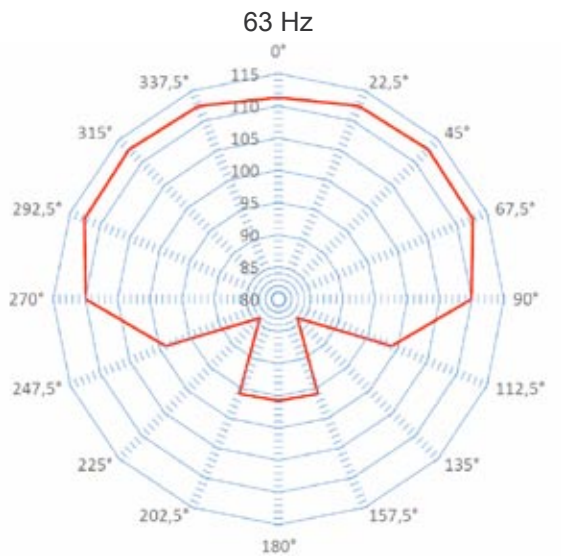
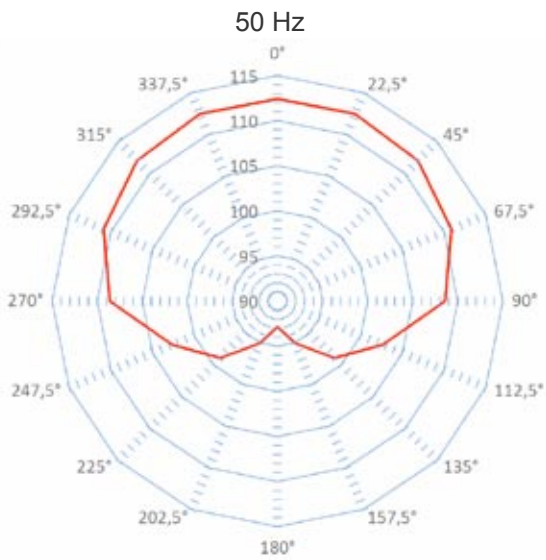
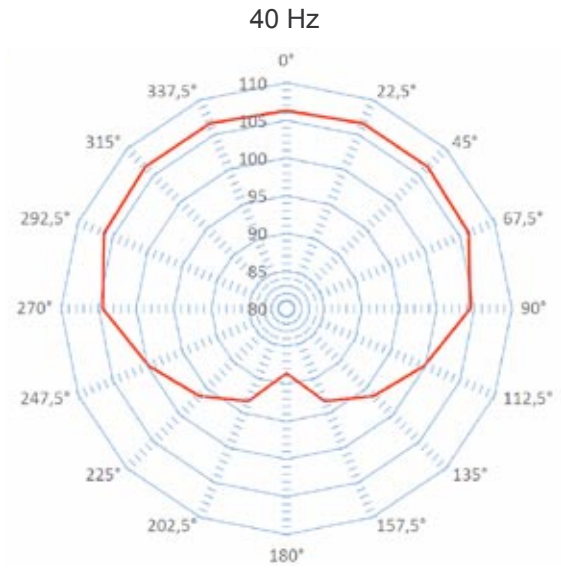
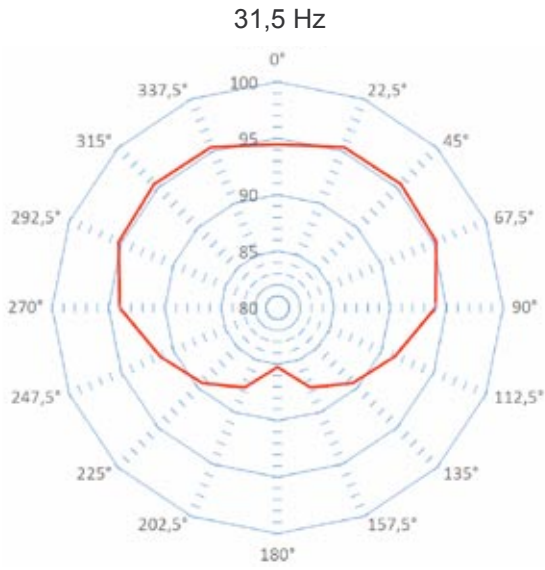
Outdoor Festivals and Concerts

An ever occurring problem with outdoor events are that the low frequencies can be heard for miles away!

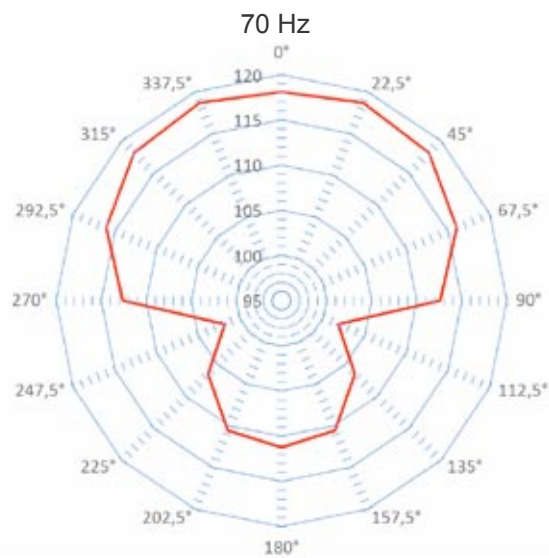
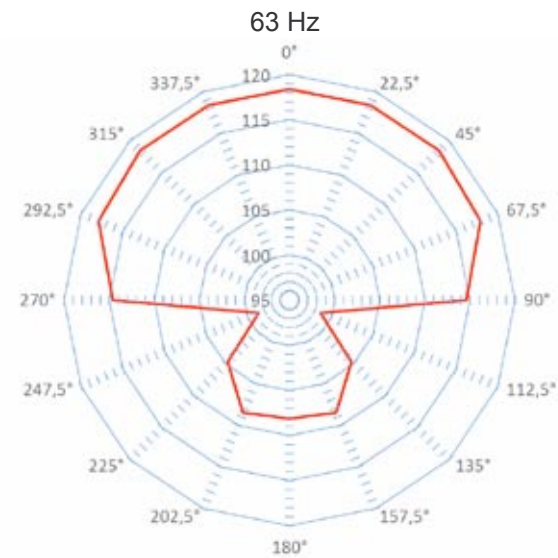
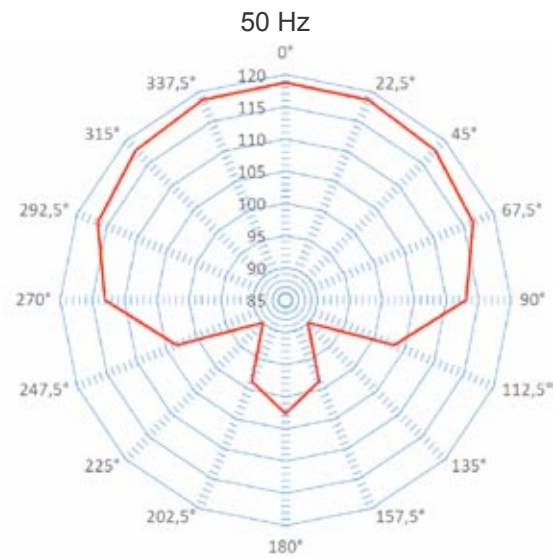
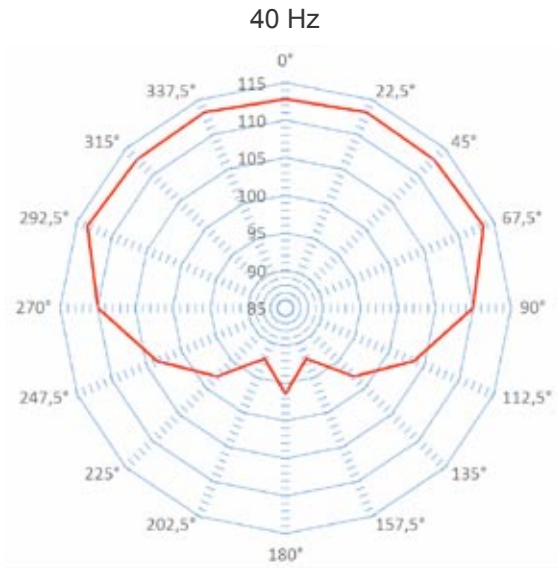
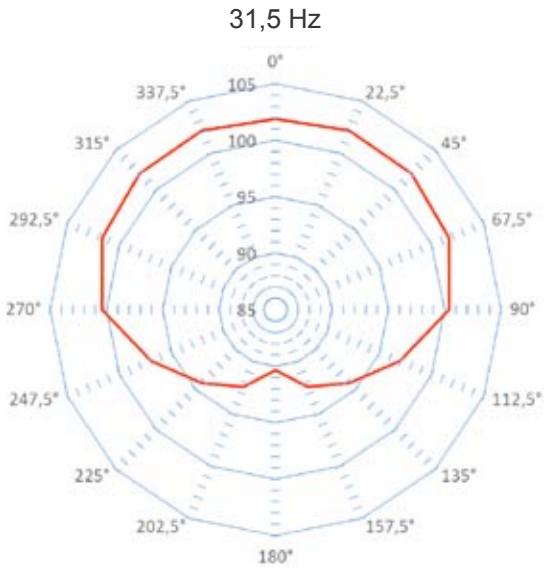
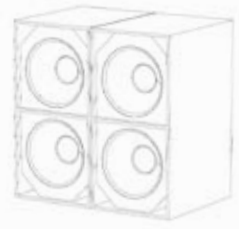
Using the cardioid technology in the Prophon B318HPC subwoofer will help when applying for permits and will also enable the designer to place the stage and audience so that the sound are aimed away from areas where complaints might otherwise come from.



Measured cardioid dipol pattern behaviour @ 2m. Using a single B318HPC in cardioid mode



Measured cardioid dipol pattern behaviour @ 2m. Using 2 x B318HPC in a stack, side by side, in cardioid mode

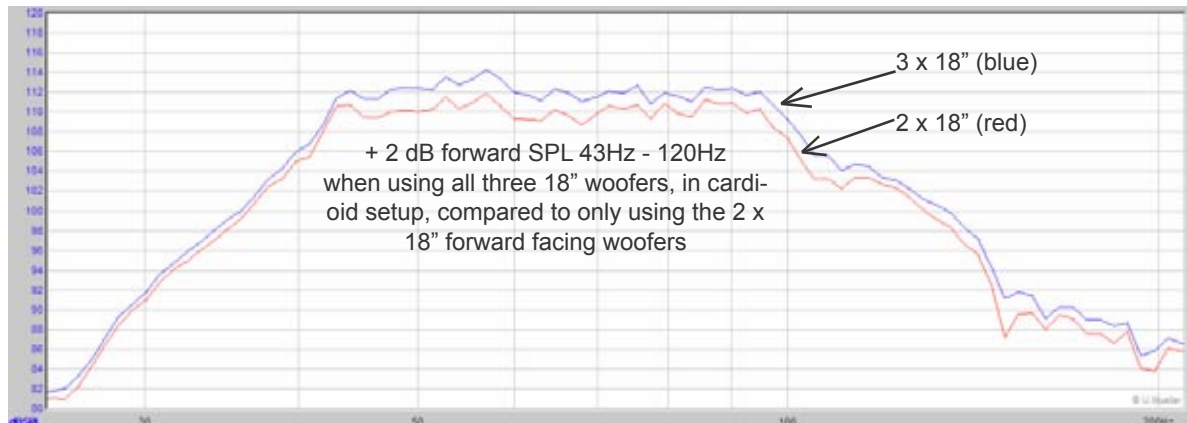


Frequency response, SPL / frequency, cardioid vs standard

Measured frequency responses for visual graphic display of how the B318HP behaves.

The Prophon B318HPC does not only result in a massive quenching of LF frequencies backwards and to the sides, there is a +2dB difference measured on axis (facing forward) when using the B318HPC in cardioid mode, (3x18") compared to using only the two frontloaded 18" woofers (see below frequency response comparison measurements)

SPL measurements are at 2m. instead of the usual 1m. distance, for simulating real usage, and a more accurate frequency response result over distance.



Picture3) Measured frequency response @ 2m., 0 degree on axis

measured comparison, dB / Frequency, 30Hz - 180Hz, using 1 x B318HPC

Blue = 3 x 18" cardioid mode (both 2 x 18" forward facing woofers and 1 x 18" backwards facing woofer)

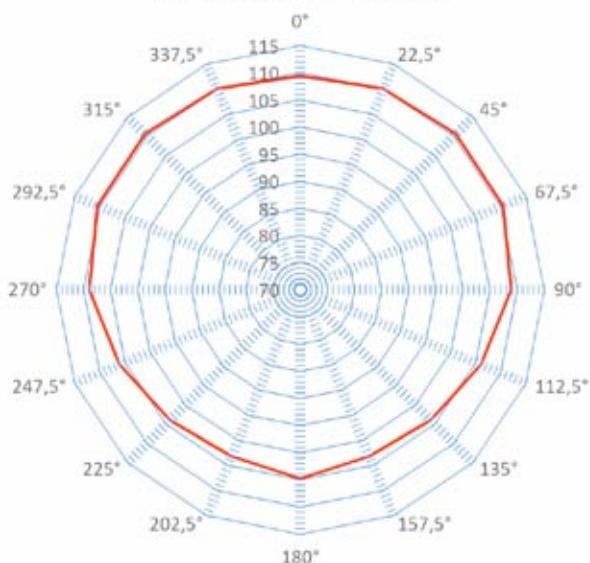
Red = 2 x 18" not in cardioid mode (backwards facing 18" woofer muted, only using the 2 x 18" forward facing woofers)

Dipol frequency response comparison of 3x18" cardioid vs 2 x 18" standard

Measured comparison of regular 2x18" frontloaded baffel-mounted tuned bassreflex subwoofer, with our B318HPC 3 x 18" cardioid subwoofer, @ 63Hz

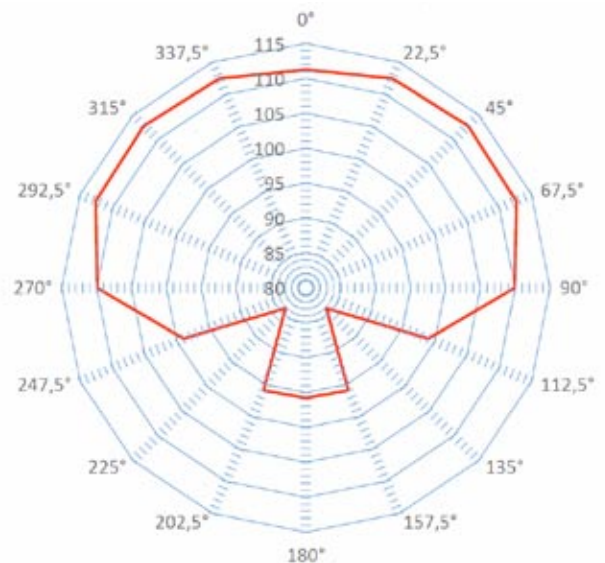
MEASURED DIPOL PATTERN @ 63Hz, 2m.

1 pc. of B318HPC, using only the 2 x 18" forward-facing woofers without cardioid setup

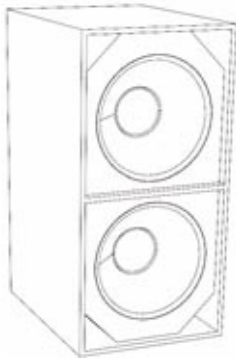


MEASURED DIPOL PATTERN @ 63Hz, 2m.

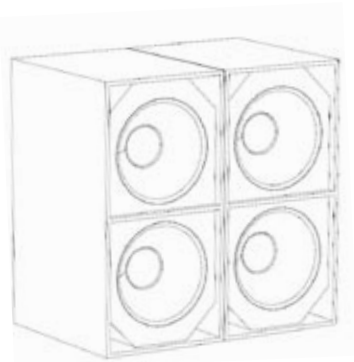
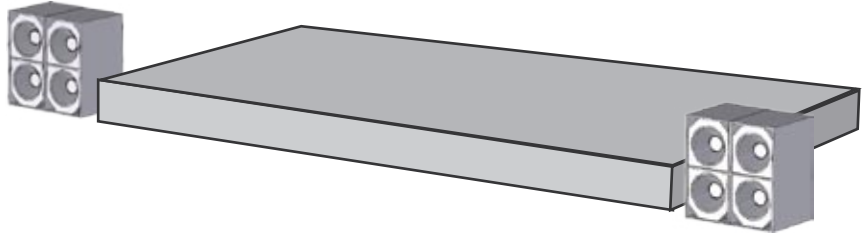
1 pc of the B318HPC, using all 3 x 18" woofers with cardioid setup



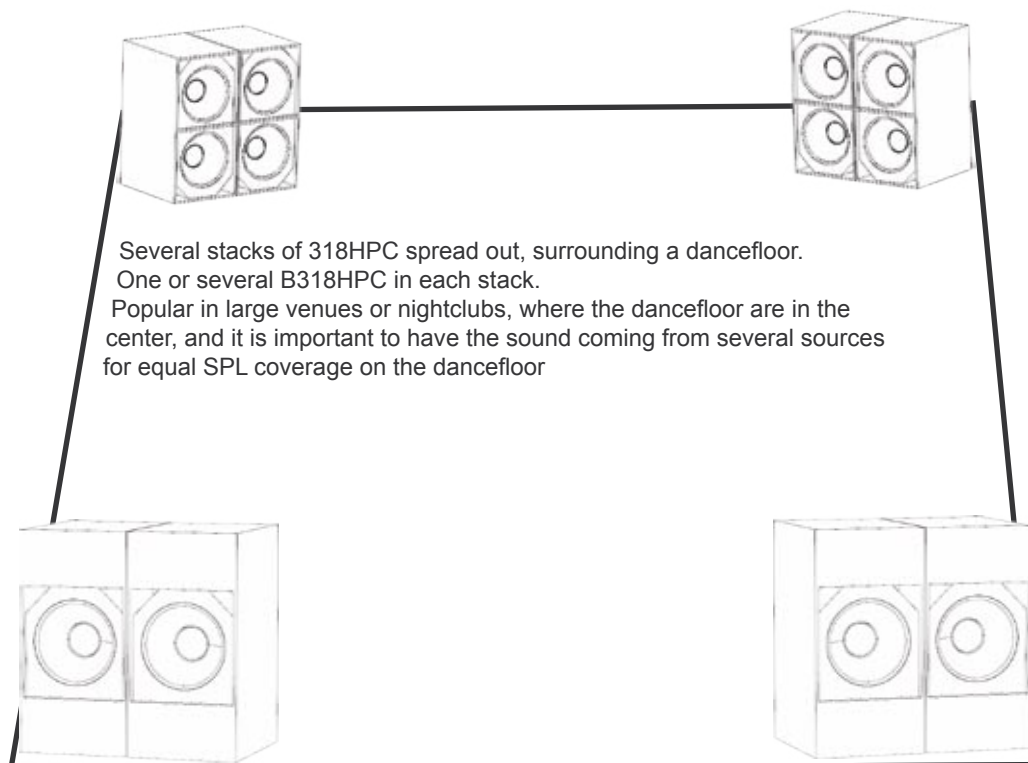
Stacking and rigging examples



Single B318HPC
Either by lifestage, or in installation in nightclubs.



Two B318HPC
Stacked either side by side, or one on top of the other
Either by lifestage, or in installation in nightclubs.



Several stacks of 318HPC spread out, surrounding a dancefloor.
One or several B318HPC in each stack.
Popular in large venues or nightclubs, where the dancefloor are in the center, and it is important to have the sound coming from several sources for equal SPL coverage on the dancefloor

PROPHON

SOUND SYSTEMS

30 YEAR
ANNIVERSARY
1985 - 2015



Made in Sweden since 1985