

Velodyne Acoustics Deep Waves 10



Powerful active subwoofer with room correction

Key Facts Velodyne Acoustics Deep Waves 10

- Active subwoofer
- 250 mm (10 in) driver with paper composite cone
- 2x 250 mm passive radiators
- Stereo input RCA
- Speaker level input
- LFE input
- 350 watts continuous power
- 600 watts impulse power
- Controllable with iWoofer app
- Automatic room calibration (with iWoofer Pro app)

► The Deep Waves 10 comes with everything you need and is supposed to make superior bass performance affordable. AV-Magazin tested whether the new Velodyne subwoofer can keep this promise.

Subwoofers are true all-rounders: they can be used to boost the bass of a system with smaller speakers, to complement a soundbar and, of course, to round off a full-fledged, discreet surround set-up. Even larger speak-



The Deep Waves is available with a 10" driver and a 12" driver (Image credit: Velodyne Acoustics)

ers can benefit from separate low-frequency support; in principle, the applications are virtually unlimited. And while subwoofers were almost exclusively found in home theatres until a few years ago, they are gradually conquering the stereophonic terrain as well. One reason for this is the trend towards compact speakers, which are easier to integrate into the living room, but are more or less limited in low frequencies. Basically, the same development is taking place there that has been observed for some time in the home cinema segment, where a large soundbar is used more and more often for film enjoyment.

After all, not everyone has the space to set up at least five channels with individual loudspeakers, and most potential customers are looking for a solution that is practicable in everyday family life. Sound formats such as Dolby Atmos are further fuelling the popularity of high-end soundbars, because the complexity of a discrete system increases with the number of speakers required for the height channels. A sophisticated Atmos soundbar is sufficient for many home cinema enthusiasts, and for stereophonic music playback, compact speakers can often show off their strengths compared to floor-standing speakers - if you still don't want to do without a solid bass foundation, all you need is a subwoofer.

So much for the theory: what works in principle doesn't always work well. It wasn't long ago that many subwoofers, despite all the effort involved in setting them up, stood out tonally from the overall performance or simply lacked precision. Before instruments are picked apart into their individual pitches, one prefers to distance oneself from the

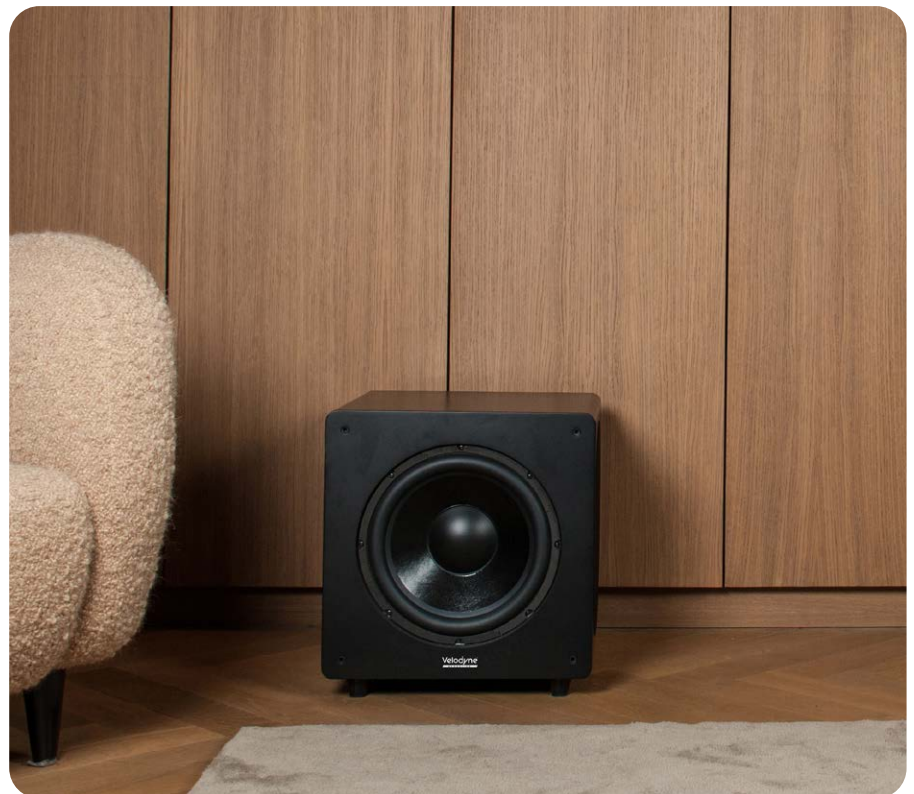
lowest octaves. Fortunately, a lot has been done in this area recently; subwoofers are being optimised more and more consistently to be as nimble and accurate as they are powerful. Improved diaphragm materials, sophisticated digital signal processing and perfected enclosures are just some of the key aspects that set current subwoofers apart from their forebears. Among the manufacturers, Velodyne is one of the major

players who have made subwoofers presentable, and can take credit for a number of crucial developments. In recent years, the specialists have focused on making powerful woofers as small as possible and transferring a high level of quality into more affordable price regions. The Deep Waves 10 tested here is primarily a result of the latter, but we will take a look at what else distinguishes the new Velodyne in the following.

Features and technology

With a price of around 1,700 euros, the Deep Waves 10 has outgrown the entry-level segment and has a lot to offer in terms of its features and technology. First of all, there are connections for all kinds of scenarios: An LFE input establishes contact with an AV receiver and a stereo RCA input enables connection with integrated amps and preamplifiers. Speaker-level inputs also allow the Deep Waves to be connected to integrated amplifiers that do not have a preamplifier output.

As the smaller model in the series, it has a 10" driver and thus joins the ranks of "grown-up" subwoofers, but with a width of 38 centimetres, a height of 40 centimetres and a depth of 32 centimetres, it remains within dimensions that are compatible with living space. A black textile covering is included in the scope of delivery; the Deep



The 10" model fits easily into the ambience of medium-sized rooms (Image credit: Velodyne Acoustics)



A nitrile rubber surround, together with a four-layer voice coil and the powerful double magnet system, ensures impulse accuracy (Image credit: AV-Magazin)

Waves cabinet is only available in "matt black". This is not due to a red pencil, but rather to a consistent focus on the needs of home cinema: TVs or projectors can easily cause reflections on shiny surfaces, but the Deep Waves, thanks to its non-reflective finish, is not a source of interference.

The 250 mm active driver of the Deep Waves 10 has a double-vented, flow-optimised basket, which is manufactured in an aluminium die-casting process. Its

diaphragm is made of a paper composite, which is finally coated to further minimise partial vibrations. Although the diaphragm, suspended in a wide nitrile rubber surround, is relatively light, it is driven by a powerful double ferrite magnet system. The large 63 mm voice coil has a four-layer winding and contributes to the fact that the long-stroke driver moves wobble-free even at large excursions. A 10" driver is already something to be taken seriously, but the Deep Waves, following the example of other Velodyne models such as the MicroVee X, is equipped with additional passive radiators that are positioned exactly opposite each other on the sides and are also 250 millimetres in size. These drivers, also called passive diaphragms, are not directly electrically driven, but are moved by the airflow in the cabinet resulting from the stroke of the active driver.

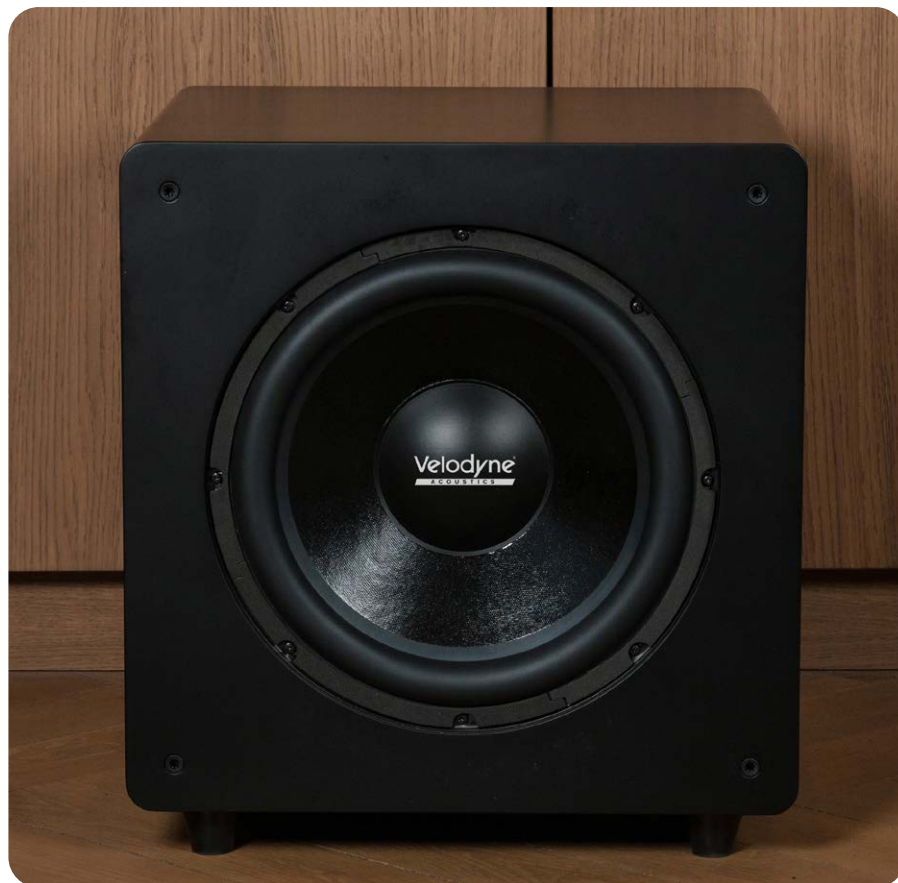
Power wants to be tamed

The amplifier section of the Deep Waves 10 is designed in Class D topology, with four 40-amp MOSFETs in the output stage providing generous current reserves. Together with the power supply, they provide a remarkable output power of 350 watts,



The Deep Waves can be easily connected to classic stereo amplifiers, AV receivers and AV preamplifiers. Speaker level inputs, an LFE input and a stereo RCA input are provided for this purpose. Rotary controls allow stepless adjustment of low-pass and level. (Image credit: AV-Magazin)

for short impulses even up to 600 watts are mobilised – more than enough for all situations. Of course, so much power and diaphragm excursion must first be brought under control so that at the end of the day they can show off their sonic advantages. Avoiding sound-damaging resonances, however, is not so easy in view of the forces at work here, especially in the case of a closed cabinet. Here, too, the engineers have drawn on their wealth of experience and designed the Deep Waves' MDF cabinet with a wall thickness of 22 millimetres. In addition, massive internal bracing makes the cabinet resistant to vibrations. Alongside the mechanical aspects, digital signal processing also plays a role in resonance optimisation: The powerful DSP not only processes the input signal according to the set parameters, it also ensures distortion-free reproduction in real time and actively avoids resonances. Furthermore, the DSP protects the electronics and the driver from overload under all operating conditions.



The membrane of the active driver is made of coated paper composite material (Image credit: Velodyne Acoustics)

Features

- Stereo input RCA
- Speaker level input
- LFE input
- Stereo output RCA
- LFE output
- Controllable with iWoofer app
- Automatic room calibration (with iWoofer Pro app)
- Automatic power on/off
- Phase switching
- Stepless low-pass setting



Setup and listening

In view of the fact that low frequencies are difficult to locate, subwoofers can be positioned almost anywhere in the room – one might think. Especially the far-reaching possibilities of room adjustment quickly tempt to this erroneous conclusion, and then a lot of potential is wasted. It should be noted in advance that the Deep Waves' side-mounted passive radiators easily cause objects in their immediate vicinity to vibrate, despite the large wavelength in the bass range – a space of one metre to the side is recommended. Basically, subwoofers are best placed in a similar way to loudspeakers: First, try out different positions in the room with a moderate level setting and a frequency that matches the speakers, and make sure the sound is balanced. If it doesn't sound boomy or noticeably thin, you can optimise it with the Deep Waves' stepless low-pass setting and the subwoofer volume setting – music with acoustic instruments is suitable for this.

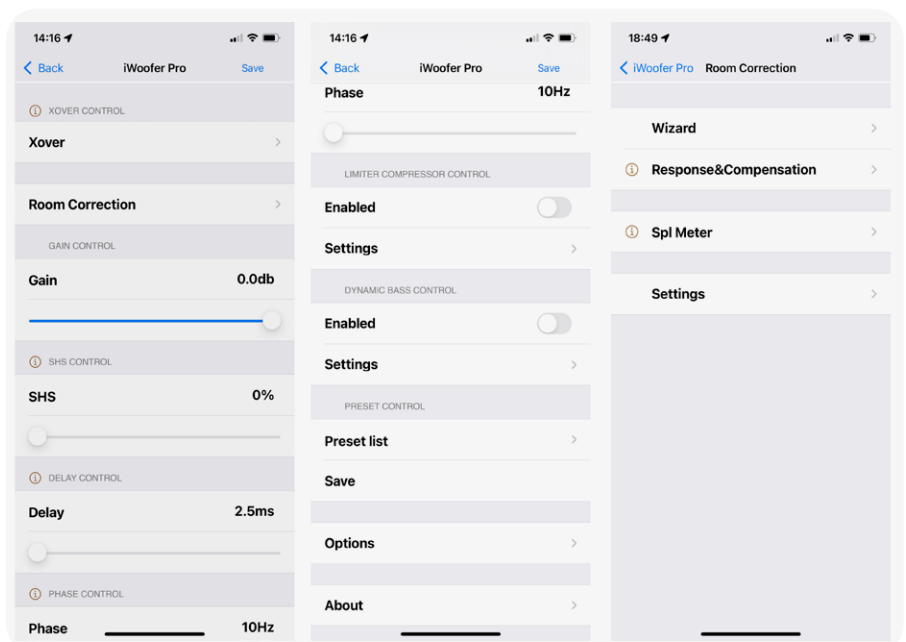
In this way, excellent results can be achieved in most rooms, but it is precisely a woofer of the Deep Waves' calibre that we want to push to the limit by means of room adjustment.

It's that simple: Setup with the "iWoofer" app

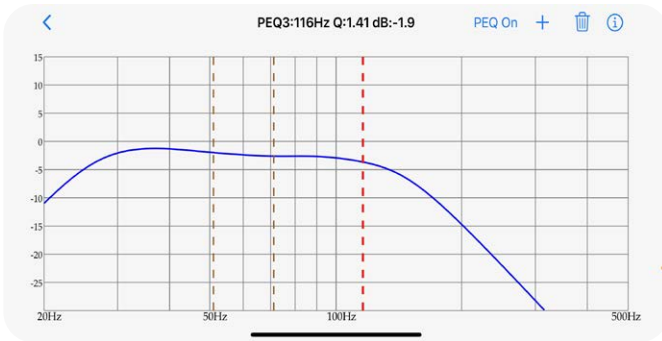
Velodyne recommends the app "iWoofer" by the free developer Artem Khlyupin for this purpose, which is open on the hardware side and available for iOS and Android. In order for it to work with a specific model, the manufacturer must cooperate in advance by allowing access to the DSP of its subwoofer for this app. The free version of iWoofer allows you to set the low-pass, volume and phase comfortably from your sofa. In addition, presets such as gain and delay as well as a parametric equalizer are available – only experts should be involved with these parameters. The procedure for automatic



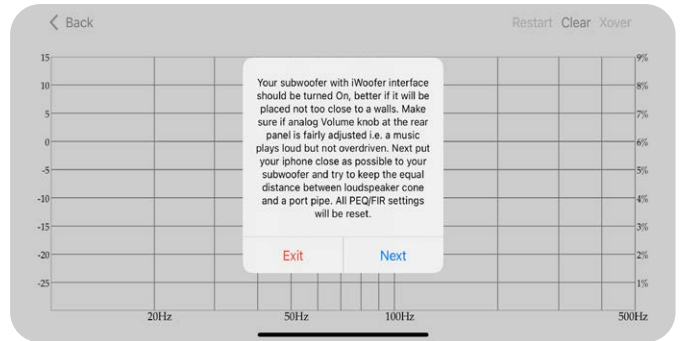
Two side-mounted 10" passive radiators support the actively driven driver (Image credit: Velodyne Acoustics)



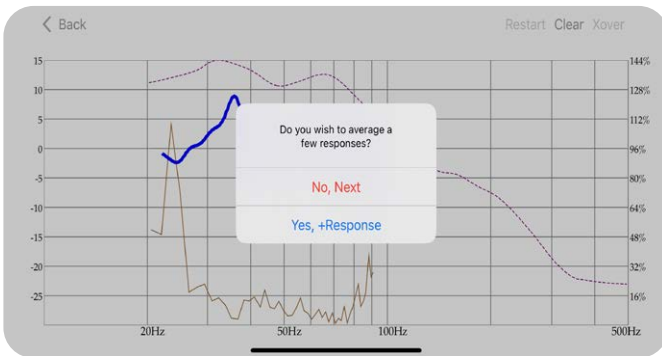
The iWoofer app offers numerous settings and presets (picture left), its menu structure is clear and displays the most important options at the top (picture middle). Before the automatic calibration (only with iWoofer Pro, 5.99 euros), various parameters can be defined (picture right). We recommend leaving this option out because the default settings are suitable for every situation (Screenshots: AV-Magazin)



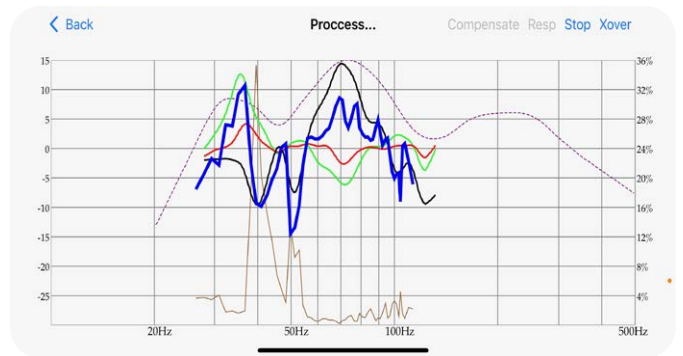
A parametric equalizer allows corrections to be made manually in several individual frequency ranges. Only those who know how to do this should intervene carefully (Screenshot: AV-Magazin)



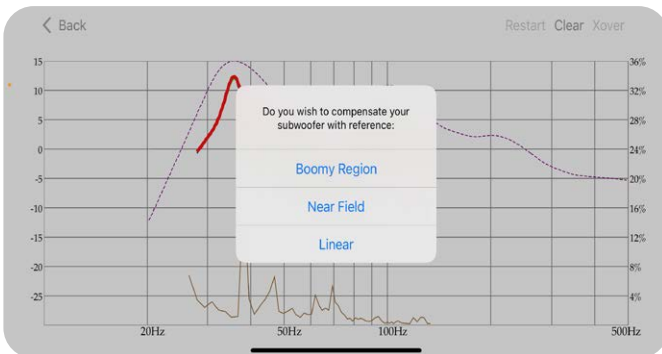
Before the calibration, there is an explanation of the procedure. However, the advice to place the iPhone as close as possible to the subwoofer should not be taken too literally: The near-field measurement is only an option, and in several cases the app indicated that the moderate subwoofer level was too loud for the measurement (Screenshot: AV-Magazin)



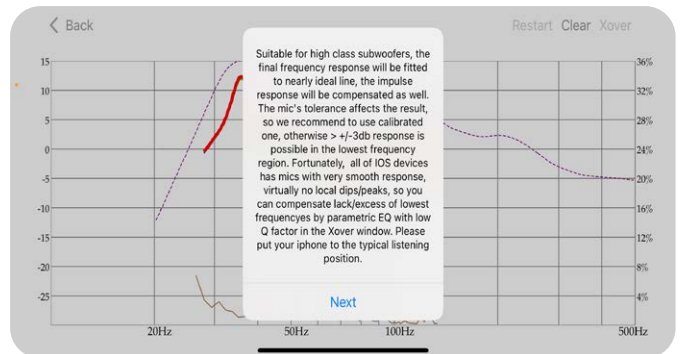
After an initial series of measurements at the listening position, you can carry out further measurements (Screenshot: AV-Magazin)



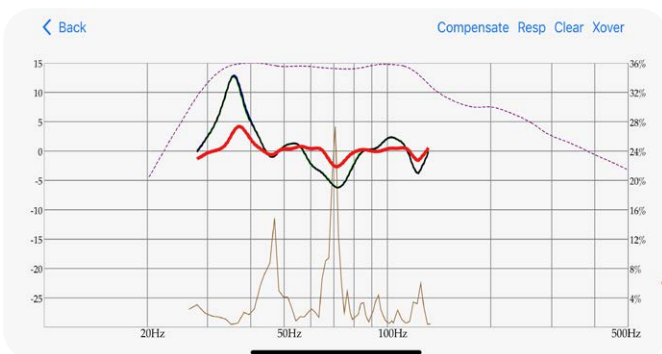
With three or four measurements you are on the safe side (Screenshot: AV-Magazin)



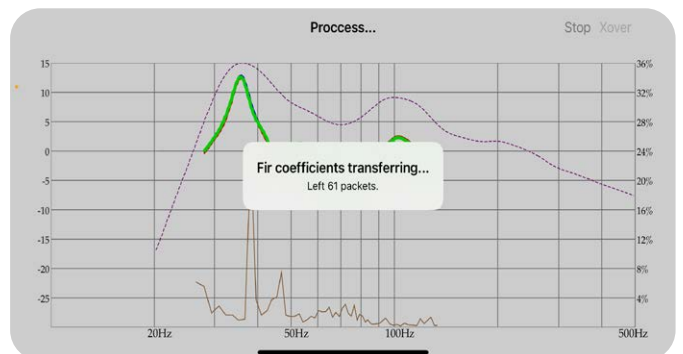
After the last measurement, the mode of compensation can be selected (Screenshot: AV-Magazin)



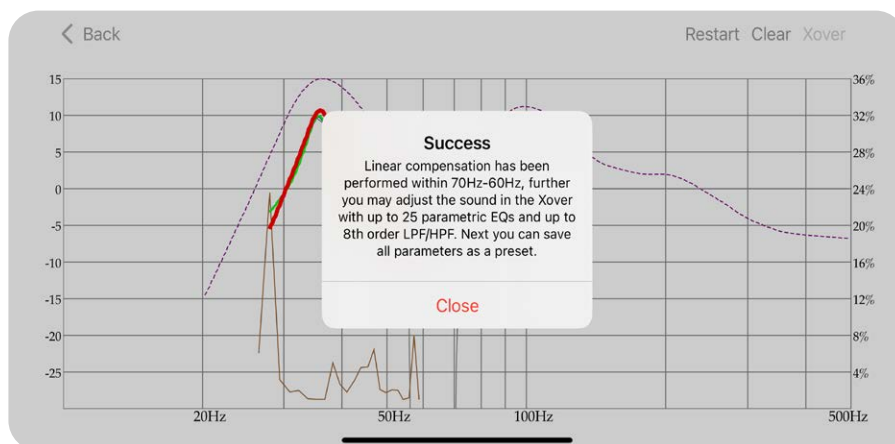
A detailed explanation of the selected method is then displayed (Screenshot: AV-Magazin)



Now the correction can be started by pressing the button "Compensate" (Screenshot: AV-Magazin)



Finally, the correction curves are transmitted to the DSP of the subwoofer (Screenshot: AV-Magazin)



After successful transmission to the subwoofer, the calibration data can be saved as a new preset that can be named individually (Screenshot: AV-Magazin)

room adjustment, on the other hand, is quite simple and delivers optimal results, but this feature is exclusively offered in the Pro version (5.99 euros), which is only available for iOS. In the following, we show you the individual steps in room calibration.

Listening

We start our listening session with the fifth album "Dance Fever (Complete Edition)" by "Florence + the Machine", released in 2022, on which the band around lead singer Florence Welch once again combines stylistic influences from different genres such as indie rock, pop and soul to create their own very listenable sound, this time with hints of gothic as well. Regarding their instrumentation, the eighteen excellently produced songs also have one or two surprises in store: drums, guitars and synthesizer sounds are occasionally joined by harp, glockenspiel and accordion. The Deep Waves 10 is of course in its element with drums and bass guitar, although in the case of many speakers, the reproduction generally sounds more sovereign and relaxed when supported by a

subwoofer. Where only a few transducers can reach, the Velodyne can set important accents for the emotion without being overly prominent: The mid-sized drums on "Mermaids" have decent body, sound voluminous (also in the recording) and earthy. And with every kick on the bass drum pedal, it becomes impressively clear what you usually miss: the big drum has a lot of weight and unleashes its dust-dry power. At the same time, the riffs of the bass guitar are wonderfully assertive, while powerful bass runs from the synthesizer give the performance a clubby touch.

Simply more atmosphere

On her 2022 album "Ghost Song", singer Cécile McLorin Salvant covers the wonderful track "Wuthering Heights" sung by Kate Bush in 1978 (album "The Kick Inside"). The first half minute of this song vividly demonstrates with the Deep Waves 10 how much frequencies at the lower threshold of hearing contribute to our perception of spatial information: The vocals of this track were recorded in a church, with the singer slowly walking from the sanctuary towards



Cécile McLorin Salvant covers "Wuthering Heights" by Kate Bush – wonderful! The Deep Waves 10 demonstrates with this song how important frequencies at the lower threshold of hearing are for the reconstruction of spatial information

the listener. The dimension of the great building now seems authentic, illuminated by the long reverberation down to the last corner. Above all, the Deep Waves intensifies the feeling of hearing air vibrating and makes the atmosphere of the special recording location get deep under your skin – phenomenal!

Last but not least, the Deep Waves gets to really flex its muscles, let's call it "compliance with due diligence". "Acid Phase" is an electro classic by French doyen Emmanuel Top and is one of my absolute favourites over the decades. The amp is turned up to one o'clock, the beats become palpable and tightly drawn, abysmal bass lines thoroughly knead the room – what a feast!

Sound

- ➕ Very deep, powerful & precise bass
- ➕ Outstanding impulse response
- ➕ Very high level stability



Characteristics

Active subwoofer, 250 mm (10 in) driver with paper composite cone, 2x 250 mm (10 in) passive radiators, Closed cabinet, Stereo input RCA, Speaker-level input, LFE input, Stereo output RCA, LFE output, Class D amplification, 350 watts continuous power, 600 watts impulse power, Stepless low-pass setting, Stepless level setting, Phase switching, Automatic power on/off, Controllable with iWoofer app, Automatic room calibration (with iWoofer Pro app)

Verdict

With the Deep Waves 10", Velodyne Acoustics offers a powerful subwoofer that can be easily integrated into a stereophonic or multi-channel setup: speaker-level inputs, an LFE input and a stereo RCA input allow the subwoofer to be easily connected to stereo amplifiers, (AV) preamplifiers and AV receivers. To set up the Deep Waves appropriately, the stepless low-pass setting and volume control is already sufficient in most situations. In addition, comprehensive equalizer functions can be used with the iWoofer app, whose paid Pro version also provides automatic room calibration. In terms of sound, the Velodyne combines the best of both worlds: It acts lightning-fast and precisely and delivers the deepest basses with enormous power. This makes the Deep Waves 10" ideal for upgrading fine stereo systems and creating a rousing atmosphere in the home cinema. ◀

Review by Marius Donadello

Translation by the author

Image credits: Manufacturer / AV-Magazin

Technical specifications*

Distributor	Audio Reference, Hamburg
Manufacturer	Velodyne Acoustics, Hamburg
Model	Deep Waves 10
Price	1,699 EUR
Product category	Active subwoofer
Warranty	3 years electronic, 5 years drivers (registration required)
Delivery scope	Mains cable, driver cover, quick start guide, warranty claim card
Finishes	Matt black
Principle	Active, closed cabinet, 2 passive radiators
Input	1x Stereo RCA / LFE, 1x Speaker-level
Output	1x Stereo RCA / LFE
Drivers	1x 250 mm (10 in) driver with paper composite cone, 2x 250 mm (10 in) passive radiators
Frequency response	28 Hz - 200 Hz (+/- 3 dB)
Power output	350 Wrms, 600 watts impulse
Amplification	Class D
Low-pass crossover	Stepless setting, 50 - 200 Hz (12 dB / octave)
Dimensions (W x H x D)	380 x 400 x 320 mm (with feet, grill & connections)
Weight	21 kg

*Manufacturer's information

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Highlight

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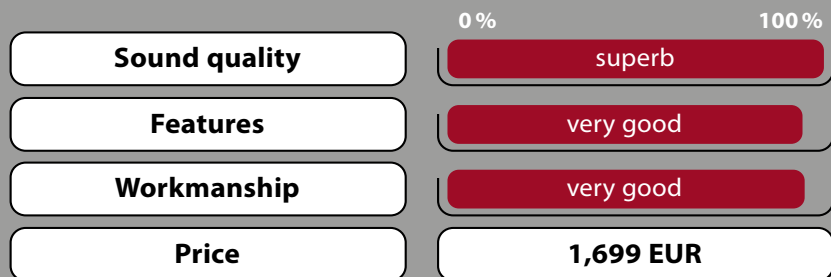
Audio Reference, Hamburg

+49 40 53320359

www.audio-reference.de

Product category: aktiv subwoofer

Weighting: Sound quality 60%, Features 20%, Workmanship 20%



Klasse

Top class

Preis/Leistung

very good

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Velodyne Acoustics Deep Waves 10

superb