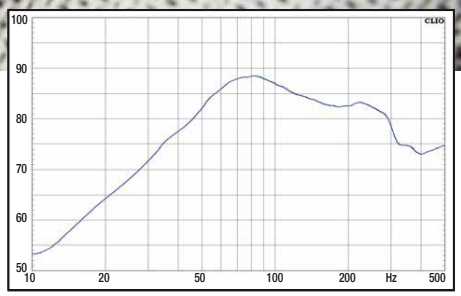
Eton PW 10 Flat + PW 12 Flat: Subwoofers with low installation depth requirement.

Inconspicuous bass maker

With a -3 dB frequency of 55 Hz, the PW 10 Flat does not run breathtakingly low, but thanks to the flat slope it can also produce quite low frequencies



The PW 12 Flat runs exactly like its little brother, only it is significantly louder at 88 dB

In the course of a veritable subwoofer offensive Eton is also presenting new series with especially flat woofer chassis. We asked to test the affordable PW woofers.

Among subwoofer single chassis, the Power series from Eton represents the affordable entry-level option. There are robustly made models in the sizes 8, 10 and 12 inches so that most applications should be covered. New additions are now the models PW 10 Flat and PW 12 Flat with shallow installation depths. This of course makes sense since such woofers can be installed in a double-bottom trunk, e.g. to save space. With installation depths of just 8.5 and 9.5 cm respectively, the PW 10 Flat and PW 12 Flat are then also considerably shallower than normal woofers of the same size. As a side effect, both are also priced lower than their full-size counterparts. This of course makes them an alternative for those looking to save money, even if a flat housing is not an absolute must. Both woofers are based on normal metal baskets. At the front flange we find plastic rings, which make the woofers look somewhat thicker. The difference from the standard woofer is that the ferrite magnet is fitted inside the basket of both flat models and not as is usual under the basket. The driver continues with upper pole plate, magnet ring and lower pole plate. Pole plates are needed by the flat woofer too of course. The lower plate with the pole core is the only thing that protrudes a few millimeters outside the basket. A plastic spacer sits on the top plate to ensure the necessary distance between centering spider and pole plate. This distance is also equal to the maximum mechanical stroke, which is approx. 20 mm for both PW Flat woofers. The ten-incher works with a 50-mm voice coil. In the case of the 12-incher there is even a 64 mm coil, which is very decent for the low prices. Both woofers have 2 x 2 ohm terminals making them equipped for everything, including operation with the popular multichannel power amps using amplifier chips. In relation to the cones, Eton then had to come up with something because the internal structure leaves very little space for them. Therefore recourse has been made to paper as the cone material, which can be pressed into any desired shape during the production process. Hence the PW Flat diaphragms consist of a short cone as a transition to the coil former together with a slightly flared surface toward the surround. The dustcaps are made of the same material, and blend in perfectly, both structurally and visually. To reinforce the transition

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Only the lower pole plate protrudes from the regular basket. It doesn't get much flatter with this type of construction.

between diaphragm and coil former, Eton has furthermore fitted small collars at the connection point. Altogether the PW Flat woofers are very nicely and cleanly made. Naturally they are not nearly as solid as SPL woofers, but nevertheless very robustly made.

Measurements and Sound

The light construction is evident with its very pleasing set of parameters. In spite of full-sized voice coils with a linear stroke of over a centimeter, the moving elements weigh only 132 and 147 grams respectively. The resonant frequencies are neither particularly high or low, while the Q factors tend to be on the high side. This is also a reason for opting for closed enclosures, although the PW Flat are also suitable for ported boxes. But closed is smaller, and since we want to install flat woofers inconspicuously, we also choose the closed box option. A volume of 17 liters suits the PW 10 Flat, and the PW 12 Flat feels at home in our 25-liter box. In the frequency response measurement the amplitude curves are congruent. Only above 200 Hz, where nobody is interested, do differences show up due to the different enclosure dimensions. Both enclosures are tuned to 60 Hz. In the low bass range that will not be a big hit, but the PW Flat speakers are not designed for that. Their specialty is rather to control the addition of the right dose of bass to the music to make it sound full and rich. This is not subwoofer tuning for bass fanatics who want to clearly hear with every beat what they have ditched their subwoofer budget for. With the PW Flat pop music and rock sounds rounded, the PW 12 Flat in particular delivers very respectable sound pressure level when required. The good thing about both of them is that the bass tones are precisely spot on at all times. You never hear boominess or spongy kicks. Bass drums kicks are clearly distinguishable even in rapid staccato, which is really fun. Even with electronic bass tones the contour is retained, and in the lower registers bass still comes out of the boxes, in contrast to high tuned reflex woofers. The PW Flat speakers are indeed real subwoofers, just not dark bass specialists.

The raised centering spider and voice coil can be seen through the window. The diaphragm is so flat that it disappears behind the edge of the basket.

Summary

With the PW 10 Flat and PW 12 Flat Eton offers very affordable options for a very good woofer sound from flat, inconspicuous housings. Superbly made and strongly recommended.

SOUND-TIP
Upper-Class
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Subwoofer		Eton PW 10 Flat	Eton PW 12 Flat
Price		about 120 Euro	about 130 Euro
Distributor		ACR CH-5330 Zurzach	ACR CH-5330 Zurzach
Hotline		info@eton-audio.eu	info@eton-audio.eu
Internet		eton-audio.com	eton-audio.com
Summary			
Sound quality	50 %	1,0	1,1
Bass foundation	12,5 %	1,5	2,0
Pressure	12,5 %	1,0	1,0
Clearance	12,5 %	0,5	0,5
Dynamics	12,5 %	1,0	1,0
Lab	30 %	1,7	1,7
Frequency response	10 %	1,5	1,5
Efficiency	10 %	2,5	2,0
Max. SPL	10 %	1,0	1,5
Workmanship	20 %	1,0	1,5

Technical data		
Diameter	26,1 cm	31,7 cm
Mounting diameter	23,2 cm	28,2 cm
Mounting depth	8,5 cm	9,5 cm
Magnet diameter	–	–
Weight	4,1 kg	4,4 kg
Nominal impedance	2 x 2 ohms	2 x 2 ohms
DC resistance Rdc	3,76 ohms	3,74 ohms
Coil inductivity Le	2,59 mH	2,42 mH
Coil diameter	50 mm	64 mm
Cone surface Sd	346 cm²	515 cm²
Resonance frequency fs	44 Hz	38 Hz
Mechanical quality Qms	7,84	8,57
Electrical quality Qes	0,86	0,73
Total quality Qts	0,77	0,67
Equivalent volume Vas	17,0 l	44,0 l
Moving mass Mms	132 g	147 g
Rms	4,60 kg/s	4,10 kg/s
Cms	0,10 mm/N	0,12 mm/N
B*l	12,57 Tm	13,40 Tm
Pressure 1 W, 1 m	85 dB	88 dB
Power handling	150 – 350 W	150 – 400 W
Test chamber	closed 17 l	closed 25 l
Port (d x l)	–	–

Middele-Class 1,2	Upper-Class 1,4
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Price/performance: very good	Price/performance: excellent

"Flat, affordable and powerful sound. Fits."