

ATOHM[®]

SIROCCO SERIES

The "SIROCCO SERIES" speaker range is the successor to the previous models "SIROCCO, NOTUS, GHIBLI, DZHARI and HEGOA " developed by the ATOHM brand. Not surprisingly, the new 1.0, 2.0, 3.0 and C1 partly inherit from technologies which have proved successful in the past. However, they also benefit from very significant improvements as far as both audio performances and available finishes are concerned.



ATOHM's laboratory is equipped with the best research and development tools available: CA03D, dynamic simulations using the finite element approach, FFT analyzer, KLIPPEL measurements and vibratory analysis using laser interferometry are some of the tools we use in order to innovate, create and test our products. Many years of research led to the development of the ATOHM "Classic Series" loudspeakers and the SIROCCO range. They are both the result of our firm desire to offer products capable of providing exceptional performances and value for money. In terms of listening, our philosophy simply results in sound reproduction which is natural and with no artificial coloration. Whether you are a cinema enthusiast or a music lover, you will appreciate listening to sound which is balanced, and also soft and dynamic. You will be won over by the true tonal range and by a broad and deep sound stage. Our passion for music, sound reproduction and beautiful objects was our guiding inspiration throughout the entire product development process.



[1-0]



[C-1]



[2-0]



[3-0]

1) ATOHM SD20 ND04 F TWEETER



The SIROCCO range is equipped with the brand new ATOHM SD20ND04F "Classic Series" Tweeter. This unit is fitted with a neodymium motor, a silk dome and a 20mm coil made out of CCAW wire (Copper Clad Aluminum Wire). Thanks to the light

weight of the moving parts and the throat section of the specially profiled horn, the sensitivity level is 93dB/ 2.83V to 1 M. The front of this tweeter is made out of injected aluminum which guarantees the absence of interfering vibrations, and we have also included ADP™ technology (Anamorphic Dispersion Patterns). This feature unique to ATOHM guarantees better off-axis dispersion and limits interfering reflections at very high frequencies (the on-axis frequency response reaches up to 25 kHz). Furthermore, the aluminum coil support and the ferrofluid-filled air-gap ensure excellent dissipation of the calories produced by the moving coil, resulting in excellent power handling without compression, a problem leading to reduced listening quality.



2) CLASSIC SERIES MIDRANGE SUBWOOFER



The bass/midrange loudspeakers (LD130 and LD165) featured on the SIROCCO models have made ATOHM's reputation what it is today. These "Classic Series" units are particularly appreciated for their extraordinary capabilities in the bass register as well as their accurate and warm reproduction of midrange frequencies. Their excellent performances are a direct result of the following specific characteristics:

- Ample motorization with « **COPPER RING** » technology. The core features a copper ring which limits the creation of induced current (Foucault currents) in the polar parts. This technology also helps to reduce and linearize the inductive value of the winding. The result is a significant reduction in distortion (per odd harmonic / per intermodulation) as well as a more linear and broader frequency range.
- Diaphragm made out of oriented cellulose pulp fiber, which has a good rigidity/damping ratio.
- Spider made out of Conex (a mixture of cotton and Nomex) ensuring better reliability and excellent performance consistency over time.



LDS™ TECHNOLOGY



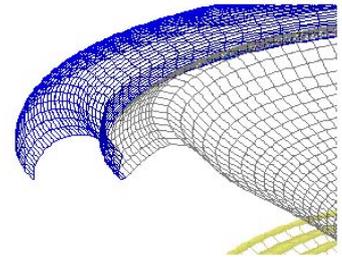
COPPER RING TECHNOLOGY



FRAME MADE OUT OF INJECTED ALUMINIUM

- Peripheral suspension featuring LDS™ technology (Low Diffraction Surrounding) characterized by a very specific profile providing progressive break-up of the suspension in the midrange frequencies (frequency response is more linear)
- Frame made out of injected aluminium, for better mechanical stability and increased thermal dispersion.

BREAK-UP SIMULATION USING THE FINITE ELEMENT METHOD



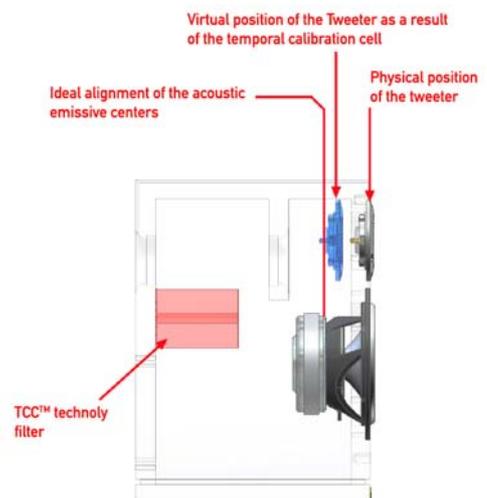
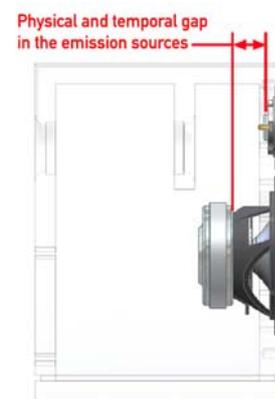
3) FILTERING : TCC™ TECHNOLOGY

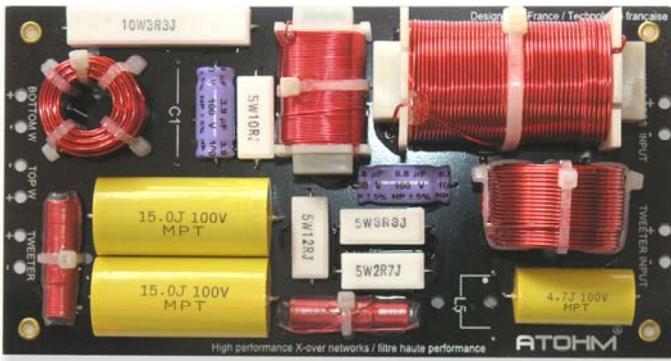
TCC™ Technology (Time Coherent Crossover) was developed for the “GT” range and for the “DIABLO” model. This technique provides an ideal link between the midrange source and the tweeter, for such criteria as phase, group delay and impulse response.

The midrange loudspeaker (or bass/midrange) and the tweeter are positioned on the same vertical plane (single baffle). Due to their respective geometry (notably that of the depth and the vertical position of the moving coils), these two transducers do not share identical time origin. In more practical terms, when the listener is facing the speakers, the midrange loudspeakers “start” later than the tweeters. Conventional filters allow you to adjust the phase so as to ensure linear frequency response. However, they do not provide a remedy for the initial cause (the time delay) and only increase the group delay at the transducers’ roll-off frequency. Another solution consists of slightly changing the position of the tweeter compared to the midrange loudspeaker, by adjusting the alignment on the baffle. Nevertheless, part of the sound signals emitted by the tweeter’s transducer is reflected by the “non-alignment” of the baffle (at a more or less sharp angle). This results in irregular frequency response, which is confirmed by a lack of sound stage precision.

To solve this problem, ATOHM filters include temporal calibration cells (delay line) for the treble range.

Apart from this first advantage, using these calibration cells makes it possible to use 1st order filters (6dB/oct). This type of structure limits phase rotation at the roll-off frequency, and also reduces group propagation time. In other words, ATOHM filters adopt “gentle slopes”. Specific cells are added, when necessary, to correct some of the physical phenomena which occur, such as motional impedance compensation, impedance compensation, parallel notch filter etc...





A far as components are concerned, they are carefully calibrated and must fulfill a certain number of precise quality requirements. They include air core inductors, MPT capacitors, low resistance iron core inductors, etc. Internal wiring is done using 2.5mm² cross-section multistrand OFC wire.

When listening, these special features reproduce a realistic and perfectly “holographic” sound stage. The notion of sound layers is perfectly respected; with amazing ease, the instruments take up their positions on the stage.

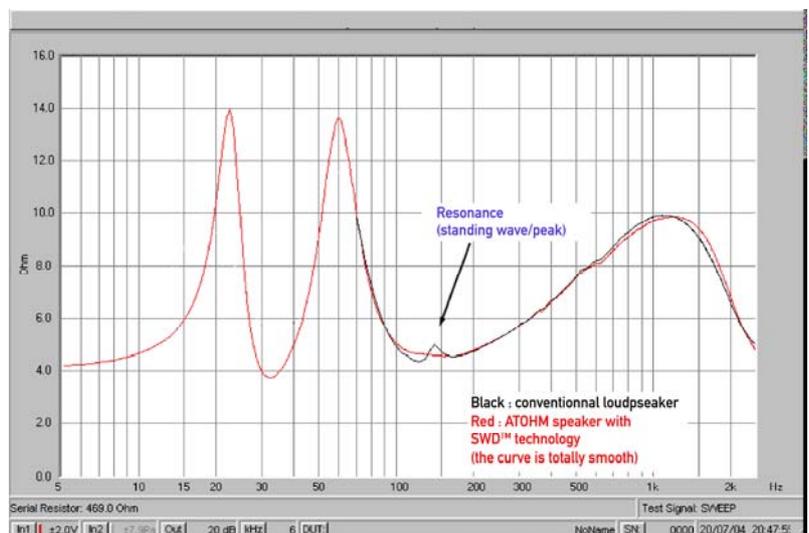
4) ACOUSTIC LOAD

ATOHM speakers use a bass-reflex type enclosure. The tuning frequencies as well as the vent sections were very finely adjusted to obtain maximum performances in the bass register (distortion, frequency response, excursions of the moving parts and air flow noise).

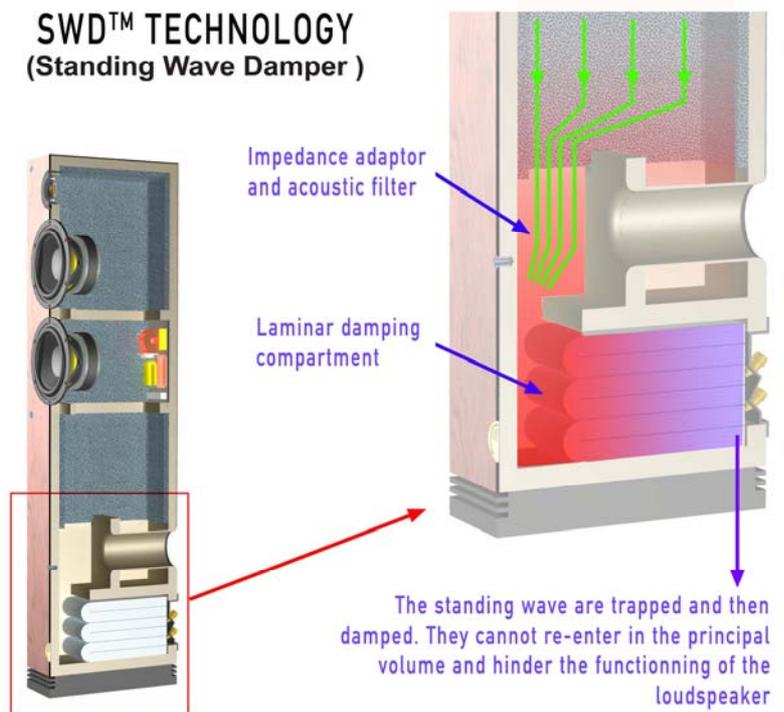
5) TREATMENT OF THE REAR WAVE

Conventional “column” speakers have a bigger rear volume than smaller “book shelf” type speakers. This large internal volume is exposed to reverberation (standing waves) due to sound reflections between the cabinet panels. The most harmful of these mount up vertically between the top and bottom edges of the speaker cabinet. Indeed, the cabinet cross-section being thin, the reflection rate between the base and the top of the cabinet is high. In simple terms, the speaker can be described as a simple vertical “tube” which is closed off at both ends. Inclining the concerned panels or eliminating any parallelism does not fundamentally change this behavior. Adding a thick, absorbent fabric lining limits this phenomenon. However, with it not being very selective, it can also lead to over damping the whole of the medium bass register and modifying the behavior of the loudspeakers in the lower spectrum.

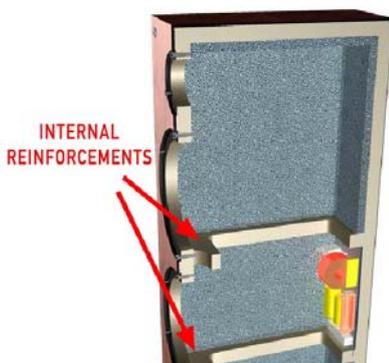
The first resonance frequency is proportional to the height of the speaker (1 half wave length). As far as amplitude in this mode is concerned, it is affected by the position of the bass loudspeaker(s) and by the quantity of damping material lining the interior of the cabinet. This accident is often revealed on the impedance curve (slight peak situated between 100 and 200 Hz) or by using a near field pressure measurement. When listening, this produces an upper-bass register which is somewhat “puffy” and certain musical notes linger on (known as smearing).



To solve this problem, ATOHM "column" speakers feature SWD™ Technology (Standing Wave Damper). This specificity is characterized by the addition of a laminar damping compartment situated in the base or in the top part of the speaker. This compartment consists of a choke (acoustic impedance-matching transformer /acoustic filter) and a volume filled with perfectly dosed damping material. Thus, by channeling and damping the rear wave, this system cancels out the main reverberation built up in the rear volume. When listening, the SWD™ technology results in crystal-clear upper-bass/lower-midrange register with no coloration and with perfect undertones.



6) REINFORCED CABINET



The cabinets for ATOHM's speakers are all made out of high quality MDF (19 or 22mm thick according to the models). Internal reinforcements are fixed in strategic positions (measured by a laser accelerometer) in order to limit interfering vibrations.

The finish (veneer) is carried out using real wood essences (rosewood or black and white satin) which are carefully sanded before two coats of special varnish are applied.

7) ASSEMBLY AND QUALITY CONTROL

ATOHM speakers are meticulously assembled in PIN (in the Doubs region, FRANCE). Before leaving our factory, they undergo a certain number of quality checks. They are passed onto the measuring bench to check frequency amplitude response, impedance and distortion, as well as undergoing a sweep test. These stringent tests enable us to deliver two speakers paired to approx. +/-0.8 dB.



8) TECHNICAL SPECIFICATIONS

[SIROCCO 1-0]

Bookshelf speaker 2 ways bass reflex
Power handling: 70 Wrms
Peak power: 120 W
Impedance: 6 ohms
Sensitivity: 88 dB/2.83V/1M
Frequency response: 50Hz - 25kHz (-3dB)
Bass Midrange Driver LD 130 CR04
Tweeter: SD 20 ND 04F
Dimensions (H*W*D): 20*180*230 (mm)
12.5*7*9 (inch)
Weight: 8 kg/ 18lbs

[SIROCCO 2-0]

Floorstanding speaker 2+1 ways bass reflex
Power handling: 140 Wrms
Peak power: 250 W
Impedance: 6 ohms
Sensitivity: 89 dB/2.83V/1M
Frequency response: 42Hz - 25kHz (-3dB)
Bass Midrange Driver LD 130 CR08 (*2)
Tweeter: SD 20 ND 04F
Dimensions: 1044*180*200 (mm)
40.7*7*9 (inch)
Weight: 18kg / 40lbs

[SIROCCO 3-0]

Floorstanding speaker 2+1 ways bass reflex
Power handling: 200 Wrms
Peak power: 350 W
Impedance: 6 ohms
Sensitivity: 90 dB/2.83V/1M
Frequency response: 33Hz - 25kHz (-3dB)
Bass Midrange Driver LD 165 CR08 (*2)
Tweeter: SD 20 ND 04F
Dimensions: 1110*220*300 (mm)
43*8.6*11.7 (inch)
Weight: 29kg / 64lbs

[SIROCCO C-1]

Center speaker A/V 2 ways bass reflex
Power handling: 180 Wrms
Peak power: 250 W
Impedance: 6 ohms
Sensitivity: 89 dB/2.83V/1M
Frequency response: 46Hz - 25kHz (-3dB)
Bass Midrange Driver LD 130 CR08 (*2)
Tweeter: SD 20 ND 04F
Dimensions: 170*470*300 (mm)
6.6*18.3*11.7 (inch)
Weight: 14kg / 31lbs



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