

# DALI SPEKTOR

WHITEPAPER



IN ADMIRATION OF MUSIC



## INTRODUCTION

At DALI, we are deeply committed to bringing the scintillating joy of true Hi-Fi sound to a wider audience. Every speaker series we have developed since we started more than 30 years ago has brought us closer to this goal. Regardless if it was our high-end EPICON series or the compact battery driven KATCH, we knew that we were bringing Hi-Fi sound to new listeners.

With the brand new DALI SPEKTOR series we again break new ground. The SPEKTOR series is an affordable Hi-Fi speaker series that consist of four models. SPEKTOR 1, SPEKTOR 2, SPEKTOR 6 and SPEKTOR VOKAL.

Bringing the SPEKTOR series to life has been a delicate balancing act of getting the optimum amount of audio

performance, and optimising the production of every element of the speaker. Getting this much Hi-Fi performance from a speaker series in this price range not only took all of our experience and know how, but also hours and hours spent in the listening room, improving the driver and crossover designs to create the perfect audio performance.

The DALI SPEKTOR series brings the DALI sound design principals to a new price bracket, opening the possibility for many new music and movies lovers to experience the seduction of true Hi-Fi.

We are very pleased to introduce the new and exciting DALI SPEKTOR series.



SPEKTOR 6 Walnut, SPEKTOR VOCAL Walnut & SUB E-9 F Black Ash.

## PRODUCTS

The technological advances DALI has made over the years, and the experience of not just designing but building our own drivers in-house, has given us the unique opportunity to launch a series of very reasonably priced speakers that include several of DALI's core technologies, living up to the rigorous standards we set for ourselves and our products.

The SPEKTOR series represents true DALI sound, real Hi-Fi and a quality speaker series at a price range where DALI has never been before. Four different models complete the SPEKTOR series: Two compact speakers for wall mounting, shelf or stand positioning, a large floor standing speaker, and a centre channel to complete any surround setup.



# SPEKTOR 1

The ultra-compact speaker in the range. Built around a 4½" wood fibre woofer and a 21 mm soft dome tweeter, the SPEKTOR 1 is perfect for almost any situation that requires a small but well performing speaker. Front, rear or side speakers in a surround system, or alone is a compact stereo setup.



# SPEKTOR 2

Whilst still being a compact speaker, the SPEKTOR 2's larger inner volume delivers extra bass performance. The increased surface areas of the 5¼" woofer and 25 mm soft dome tweeter increases the overall sound pressure levels, making this the perfect choice for larger rooms that still require a compact speaker. The SPEKTOR 2 will also find itself at home in any surround position, helping you get that fully immersive movie experience.



# SPEKTOR 6

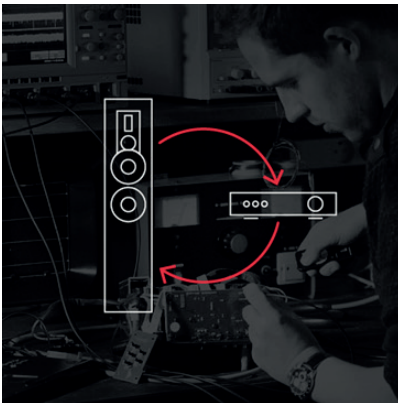
Built around two 6½” woofers and a 25 mm soft dome tweeter, this large floor standing speaker is the power-house of the SPEKTOR family. Serving up a detailed, dynamic and powerful audio reproduction, they are the perfect choice for any stereo or surround setup.



# SPEKTOR VOKAL

Taking centre stage, the SPEKTOR VOKAL delivers clarity and depth to any movie. The two 4½” woofers and 25 mm soft dome are setup to match perfectly with any of the three models in the SPEKTOR series.





By creating a very linear environment the speaker presents an amplifier friendly load.



Optimised drivers enable low complicity in the crossover ensuring low signal loss.



Wide dispersion creates a uniform sound experience in the entire room.

## DALI SOUND FUNDAMENTAL

The primary function of any loudspeaker is to convert the electrical signal from the amplifier into a realistic audio experience in the listening room. Any distortion or coloration of the original signal by drivers or enclosures is by definition a degradation of the sound. At the same time, the most important function of a loudspeaker is to secure a musical, informative and entertaining experience for the listener in their own home.

The DALI SPEKTOR series, like all DALI loudspeakers, has been designed in accordance with our fundamental acoustic and electro-acoustic principles, and a strong belief that clarity and an authentic, honest sound reproduction will get you even closer to the full impact of a live music experience.

Clarity in an audio signal is obtained by low loss of information in combination with creating a smooth and seamless reproduction in both the time and frequency domain. To retain such seamlessness, the integration of

the drivers in the loudspeaker is paramount. The success of integrating two “overlapping” drivers is dependent on numerous combinations of elements, which can only be achieved by carefully optimising the driver for not just perfect frequency response in its main working area, but also at its outer limits. This attention to the roll-off area is one of the key points to a seamless experience.

By using only DALI designed and custom-built drivers, the need for frequency correction in the crossover is eliminated. This enables us to design an exact crossover which together with carefully selected quality components ensures that the signal loss is close to zero.

Another fundamental is the lowering of mechanical distortion, since mechanical distortion will introduce un-linearity into a loudspeaker system. An un-linear non-stable environment presents the connected amplifier with a larger than necessary challenge, causing loss of detail in the signal even before it has the chance to reach the loudspeaker.

Through very low mechanical loss, the most fragile sound details, even at very low listening levels, are preserved. This is the only way to obtain the sensation of ultimate transparency and “liveliness” from reproduced loudspeaker sound.

Optimizing the audio signal for off-axis distribution results in the signal reaching your ear directly and the signal reflected off the room surfaces, to have a coherent balance. This means a consistent high sound quality across a much wider listening area. At the same time, it offers greater freedom and flexibility in positioning the loudspeakers.



Every element of the SPEKTOR speaker is meticulously designed to conform with the DALI sound fundamentals.

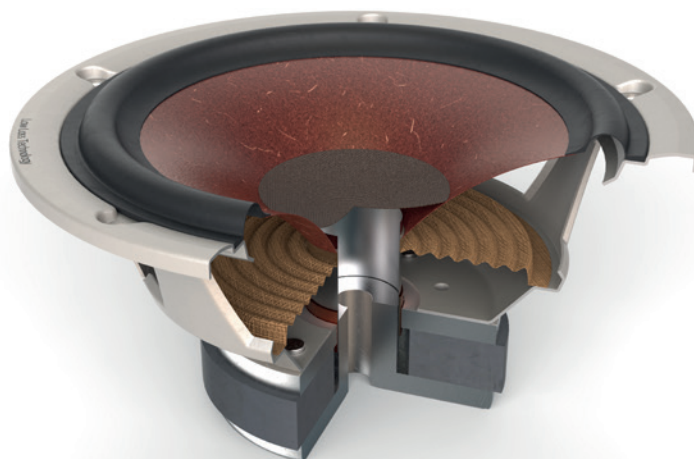
# WOOFER

When developing the SPEKTOR series, a large part was devoted to bringing as many DALI technologies to the drivers as possible. This is especially true with the woofer, where elements like the wood fibre cones, the low-loss suspension, chassis layout and magnet motor design were crucial elements in the overall design.

The wood fibre cone structure is not only a DALI trademark, but a well proven technology. By crafting the cone membrane from a mix of fine grained paper and wood fibre pulp, the cones become very ridged, very light weight and the unevenness of the membrane helps minimize unwanted surface resonances.

Combining the well-behaving wood fibre cone with the low-loss surround and spider suspension results in the reproduction of even the smallest micro-detail in the signal – unfiltered and with high accuracy.

The structure of the chassis holding the low-loss suspension, wood fibre cone, 2-layer voice coil, magnet motor system, and forming the entire contact surface area with the front baffle, was designed for optimal strength and airflow. Keeping the woofer structure strong eliminates internal vibrations and the optimised airflow around the cone area keeps movements unhindered, resulting in the ability to transform as much of the energy from the amplifier into movement.



Wood fibre cone, low-loss surround and a strong magnet motor system results in the reproduction of even the smallest details.

Having a strong magnet motor system combined with a nimble 2 layer 25 mm voice coil, keeps the coil movements precise, well timed and powerful.

Every woofer used in the SPEKTOR series is developed specifically for the speaker they are used in. Even small details like the angle of the cone and the size of the dust cap is optimized for the best possible integration, dispersion and performance.



The bass ports are placed right behind the woofers for maximum airflow and minimum damping effect.



## TWEETER

The tweeter must be able to render high frequencies with high accuracy. This means very short excursions, but at high speed, - or rather – with high acceleration. In other words, a low moving mass and a strong motor is needed.

The SPEKTOR tweeter is based on an ultra-light weight weaved fabric. Compared to most soft dome tweeters in the market, the DALI dome material is less than half the weight; 0.056 mg per mm<sup>2</sup>

The beauty of the soft dome tweeter is its impressive ability to play even the lowest parts of the high frequency range without any break-ups. This is crucial when handling the all important hand-over from the woofer to the tweeter. Not having to push either the woofer or tweeter beyond what they do best results in a seamless transition and preservation of every detail in the mid-range frequencies.

The geometry of the tweeter front plate near the dome has been optimised to create the perfect working

conditions for the soft dome. The aim was to combine an extended frequency response with wide dispersion and low coloration.



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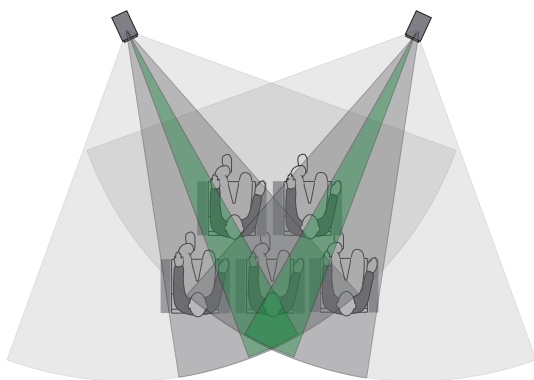
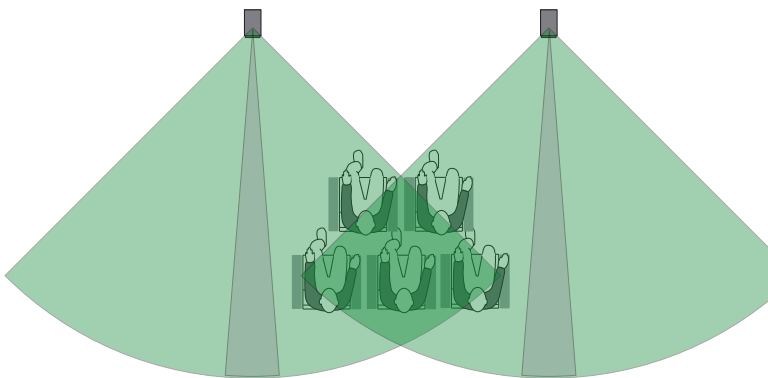
## WIDE DISPERSION

DALI makes it easy to integrate your loudspeakers into any room. Both the driver materials and geometry applied in the SPEKTOR series have been selected to achieve a wide dispersion pattern.

You will experience a well-integrated sound, even when listening significantly off-axis. And, as you are often not seated directly in front of the loudspeaker when listening to music, this is important.

An added benefit is hugely reduced harmonic distortion and diffractions causing frequency distortion, as these will always be stronger in an on-axis response.

That is also the reason why all DALI speakers are not designed for toeing-in.



DALI speakers is build for wide dispersion, filling the room with the best quality audio and enlarging the listening sweet spot.



SPEKTOR 6 Walnut.



## APPLICATION

The DALI SPEKTOR series sets new standards - It introduces the virtues of classic Hi-Fi at an affordable price point, and it offers the authentic, detailed and dynamic DALI sound to a brand-new audience.

The four models offer the optimum in flexibility.

- The ultra-compact SPEKTOR 1 for wall mount or use with any compact Hi-Fi music system.
- The compact SPEKTOR 2 for the classic stereo stand-mount setup, or as powerful rear speakers in a surround system.
- The floor standing SPEKTOR 6 for the potent stereo setup and the ultimate front left and right in a surround setup.
- The versatile SPEKTOR VOKAL that perfectly ties any SPEKTOR surround system together.

The amplifier friendly design makes the SPEKTOR series a perfect fit for almost any of the amplifiers in its price category. No matter if we look at compact Hi-Fi, stereo amplifiers or surround receivers, SPEKTOR will bring out the best in them, showing you just how good music and movies can sound.

# TECHNICAL SPECIFICATIONS

SPEKTOR	1	2	6	VOKAL
Frequency Range [+/- 3]	59 - 26,000 Hz	54 - 26,000 Hz	43 - 26,000 Hz	66 - 26,000 Hz
Sensitivity [2.83V/1m]	83.0 dB	84.5 dB	88.5 dB	87.0 dB
Nominal Impedance	6 ohms	6 ohms	6 ohms	6 ohms
Maximum SPL	103 dB	105 dB	109 dB	107 dB
Recommended Amplifier Power	40 - 100 Watt	25 - 100 Watt	30 - 150 Watt	40 - 120 Watt
Crossover Frequency	2,100 Hz	2,600 Hz	2,500 Hz	2,100 Hz
Crossover Principle	2-way	2-way	2-way	2-way
High Frequency Driver	1 x 21 mm soft dome	1 x 25 mm soft dome	1 x 25 mm soft dome	1 x 25 mm soft dome
Low Frequency/midrange Driver(s)	1 x 4½"	1 x 5¼"	2 x 6½"	2 x 4½"
Enclosure Type	Bass Reflex	Bass Reflex	Bass Reflex	Bass Reflex
Bass Reflex Tuning Frequency	58.0 Hz	51.5 Hz	41.0 Hz	51.5 Hz
Connection Input(s)	Single	Single	Single	Single
Recommended Placement	Stand/ Shelf/Wall	Stand/ Shelf/Wall	Floor	Shelf
Recommended Distance from rear wall to speaker's rear panel	1 - 50 cm	1 - 80 cm	20 - 100 cm	1 - 50 cm
Dimensions (H x W x D)	237 x 140 x 195 mm 9.33 x 5.51 x 7.68 in	292 x 170 x 238 mm 11.50 x 6.69 x 9.37 in	972 x 195 x 313 mm 38.28 x 7.68 x 12.32 in	152 x 435 x 204 mm 5.98 x 17.13 x 8.03 in
Weight	2.6 kg 5.73 lb	4.2 kg 9.26 lb	13.8 kg 30.42 lb	5.3 kg 11.68 lb
Accessories	Rubber feet, manual, wall bracket	Rubber feet, manual, wall bracket	Spike set, rubber feet, manual	Rubber feet, manual

All technical specifications are subject to change without notice.