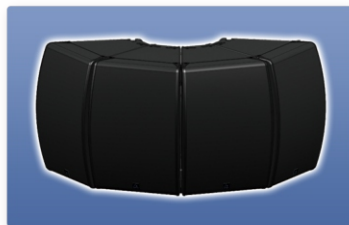


LOTUSLINE

France
2025



The key to Sound



The key to Sound

History & Innovation

At the end of 2005, a professional range of high quality loudspeakers was born – LOTUSLINE.

- 2006** LOTUSLINE has applied three proprietary technologies in three series:
- 2007** SIC™ technology in Lotusline SB series
MVC™ technology in Lotusline MA series
SHM™ collinear waveguide technology in Lotusline LA system
- 2009** LOTUSLINE acquired its own compiler software EASE Focus, called LA system.
- 2011** LOTUSLINE applied a new proprietary technology CLS™ (Coaxial line source) technology.
- 2013** LOTUSLINE has licensed EASE Focus 2 and applied a new proprietary technology, SSA™ (Spherical source array) SSA based cabinets are arrayable asymmetrical elements to be used unitary or coupled up to full hemispherical perfectly coherent point source.
- 2016** LOTUSLINE first proposed the concept of spherical waves. This technology was first applied to the SSA series.
- 2021** LOTUSLINE officially authorized the establishment of the Asia-Pacific Operations Center in Guangzhou, China. This operations center works closely with Europe to become a big family.
- 2024** LOTUSLINE first proposed the concept of precise adjustable radiation and adaptive adjustment, to fully prepare for the innovative application of AI in the field of professional acoustics in the future

LOTUSLINE systems are state of the art innovative products and offer the sound designer, sophisticated but easy to use electro acoustic tools, which are the key to sound.

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Forget the system and enjoy the sound !

Coaxial Technology

Classical arrangement of two way loudspeakers uses separate transducers positioned on a common front baffle. In the transition frequency region, due to the difference of path length between the listening point and the two separate sources, spatial frequency answer cannot be homogenous. This problem is particularly sensitive for short field listening such as stage monitoring and small venues.

By superposing both of the two sources, coaxial technology eliminates the problem and creates a perfect homogenous acoustic field on all the speaker coverage as well horizontally as vertically.

The advantages of the coaxial approach include: single point source radiation, total wavefront coherency at all frequencies and superimposed LF/HF dispersion characteristics that are free of polar lobbing effects typical of traditional horn and woofer combinations. The net result is natural, studio monitor level sound quality that is ideal for proximity use.

Lotusline MA & MQ series include two different coaxial arrangements.

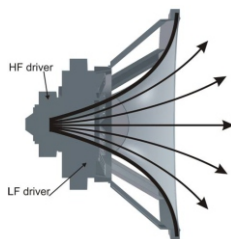
The first one uses the main driver cone as horn load for the HF driver.

This arrangement offer the largest possible conical coherent coverage and is used in MA8v2, MA10v2, MA12v2 and MA15v2.

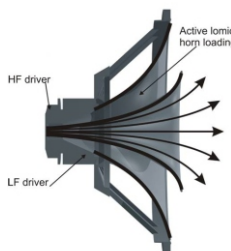
The second one uses a separate horn for the HF driver.

This arrangement offers smaller aperture angles and higher lomid efficiency by loading the main cone in its throat region. We call it "active" horn loading.

This arrangement is used in MQ60.



Standard coaxial arrangement



Coaxial active horn arrangement

Line Source Technology

All line arrays are not line sources ! What's the difference ?

A true line source array generate an homogenous acoustic field on all its coverage area, in all its frequency range and is free of interference problems. The net result is the same sound from near field to far field.

The conception of a true line source encounters a lot of technical problems the designer has to solve. The main one is the fusion of all individual sources in only one virtual line source in order to generate on all the frequency range a perfect free of lobbing effects toroidal wavefront. If the solution is evident for low frequencies, this is not the same piece of cake for high ones. The acoustical size of a sound source is close to the wavelength of the generated signal. At 100Hz, the wavelength is 3.4m, so, two speakers distant of 1.2m (half the wavelength) create a perfect coherent source. At 1kHz, the wavelength is only 34cm and these two speakers are no more a coherent source and generate interferences. At 10kHz, the wavelength is 3.4cm and there are no speakers able to realize the performance to be smaller than 1.7cm in the real professional sound reinforcement world.

Many improvements have been made in line source technology, but the physical remain the same.

SHM™ and SIC™, Lotusline proprietary technologies applied in LA series, are fundamental improvements in professional loudspeaker design.

By respecting line source rules and all other acoustic laws, Lotusline LA series are true line source line arrays with a real behaviour close to the mathematical theory.

SHM™ Technology

SHM™ (Single Horn loaded Midrange) improve dramatically midrange bandwidth and efficiency by avoiding multiple components dispersion and using collinear mid and hi frequency horns layout.

First line array uses mid drivers on plane baffle. Small improvements in efficiency have been made by using compression load midrange directly in the front common waveguide, but creating irregularities in frequency response, and dispersion in characteristics due to the multiplication of components. Actually, coaxial midrange equipped with rear standard HF driver is used in common acoustic chamber imposing a long path to high frequency waves. Lotus Line Array uses the shortest possible design by positioning the toroidal HF drivers in front of the midrange driver.

SHM™ technology reduces the total harmonic distortion both in high frequencies by minimizing the length of waveguides and in low mid by increasing the radiating surface of the driver.



CLS™ Technology

CLS™ (Coaxial Line Source) technology is the definitive solution for two way configuration line source symmetrical array systems.

Standard two way line source arrays using only one low frequency driver are asymmetrical cabinets, **CLS™** based Lotusline CL series are symmetrical and optimized minimum front baffle sized.

CLS™ technology offers all advantages of coaxial active horn arrangement applied to line source array systems. It means, minimum front baffle size, perfect symmetry of the baffle and so, perfect symmetry of the coverage.

Lotusline CL series uses **CLS™** technology, increasing the efficiency in low mid region, shaping the wavefront from spherical to ovoid and increasing consequently the maximum crossover frequency in vertical coupling.

SSA™ Technology

SSA™ (Spherical Source Array) technology is Lotusline's answer to an old question: How to build a high SPL, compact and configurable, true point source system?

SSA™ cabinets are mathematically equivalent to a portion of a spherical segment whose acoustic centre at the centre of the mother sphere. In more simple words, **SSA™** cabinets are like pieces of orange, they can be used individually and can also rebuild a complete fruit.

SSA™ cabinets are perfectly arrayable without audible interferences, even in very high frequencies.

Each cabinet can be used unitary for covering small areas or coupled with other **SSA™** cabinets for larger ones.

MVC™ Technology

MVC™ (Multi Vent Convection) technology, increase the power handling capacity of vented loudspeaker by combining acoustical and cooling functions of vents. Multiple curved vents are placed around the main loudspeaker offering a natural air convection flow lowering the temperature of the voice coil in any working position. **MVC™** equipped speakers are much more thermal breakdown proofed than standard ones, and decrease thermal compression by lowering nominal temperature of the moving coil.

The **MVC™** (multi vent convection) technology, allows the Lotusline CL, MQ and MA series to handle nominal full power capacity in any working position.



SIC™ Technology

SIC™ (Single Interactive Chamber) technology, increases bandwidth and efficiency while reducing total volume of vented bass loudspeaker by combining rear and front load in the same volume. Because rear and front load do not work in the same frequency region, it is possible, with a special calculation layout, to fuse both functions in only one. In practice, **SIC™** technology, by using this new physical approach, virtually suppresses one of the two volumes and dramatically reduce the total size of vent loaded subwoofer.

Further advantage of **SIC™** technology is the better cooling of the loudspeakers due to the exceptionally large size of the vent aperture.

Lotusline Technologies

SIC™ technology used in SB Series

- Best versus frequency-extension to size ratio
- Hi efficiency
- Better cooling

SSA™, MVC™ technologies used in SSA Series

- Spherical source array system
- Point source arrangement
- Better cooling, lo thermal compression in any working position

MVC™ and Coaxial technologies used in MQ and MA Series

- Point source, regular spatial response, perfect acoustic field
- Better cooling, lo thermal compression in any working position

SHM™ and line source technologies used in LA Series

- True line source system
- Low distortion at hi SPL
- Perfectly coherent arrays controlling vertical opening

CLS™, MVC™ and Coaxial technologies used in CL Series

- True line source system
- Point source, regular spatial response, perfect acoustic field
- Better cooling, lo thermal compression in any working position



Line Source system

CL series

The key to Sound

CL 16 / CL 3040 / CL 40 / CL 40T

Lotusline CL series are compact but high power systems, they include MVC™ technology and the new CLS™ Lotusline proprietary technology.

CLS™ technology, Coaxial Line Source is the definitive solution for two way configuration line source symmetrical array systems. Standard two way line source arrays using only one low frequency driver are asymmetrical cabinets, CLS™ based Lotusline CL series are symmetrical and optimized minimum front baffle sized.

CLS™ technology offers all advantages of coaxial active horn arrangement applied to line source array systems. It means, minimum front baffle size, perfect symmetry of the baffle and so, perfect symmetry of the coverage.

Lotusline CL series uses CLS™ technology, increasing the efficiency in low mid region, shaping the wavefront from spherical to ovoid and increasing consequently the maximum crossover frequency in vertical coupling.

CLS™ technology is a major improvement for two way line source array design.

Lotusline CL series are ideal for fixed installation. They can be used one by one in distributed configuration as well as coupled up to four depending on the coverage angle needed. The integrated rigging system allows vertical and horizontal coupling.

A minimum quantity of cabinets is used to cover large areas in mid throw installations like;

Central cluster for theater and side systems for music and spatial effects.

Main FOH for stage in clubs, side fills and distributed PA.

Products line

Fly rigging accessories



CL 16
Compact high-power coaxial line
source array element



CL16FM01



CL16FM02





CL Series

The key to Sound

CL 16 Coaxial line source system



- Compact two way coaxial line source system
- One 10 inch coaxial driver
- One 1 inch compression driver
- CLS™ collinear arrangement
- Usable unitary or arrayed
- Vertical or horizontal arrangement
- OEM factory presets for approved digital processors

Lotusline CL16 is a compact two way coaxial line source system, include MVC™ technology and the CLS™ Lotusline proprietary technology.

The CL16 is an active two-way loudspeaker system. The low-mid section comprises a 10 inch coaxial driver loaded by a 4th order MVC™ bass reflex enclosure. The high section includes a 1 inch throat (1.75" voice coil) high frequency compression driver mounted on CLS™ waveguide that provides an 100° horizontal coverage and 0° to 16° vertical coverage.

The CL16 is designed for fixed installation and touring sound. Can be used one by one in distributed configuration as well as coupled up to twenty four depending on the coverage angle needed.

The integrated rigging system allows vertical and horizontal coupling.

A minimum quantity of cabinets is used to cover large areas in mid throw installations like:
Performing arts centers, theatres, churches and touring sound reinforcement for mid-sized venues.

Specifications

FEATURES

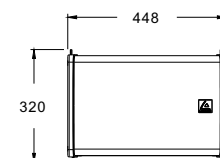
	Low Section	High Section
Frequency range with processor (±3dB)	60 Hz to 1100 Hz	1100 Hz to 20 kHz
Sensitivity@1W/1m, f>80Hz ¹	98 dB SPL	110 dB SPL
Maximum continuous level at 1m ²	123 dB SPL	129 dB SPL
Peak level at 1m, f>65Hz	129 dB SPL	133 dB SPL
Nominal impedance	8 Ohms	16 Ohms
Nominal horizontal coverage@-6dB ³	100°	
Unit nominal vertical coverage@-6dB ³	0° to 16°(0.5°,1°,2°,3°,4°,6°,8°,10°,12°,14°,16°,inter-enclosure angles)	

COMPONENTS

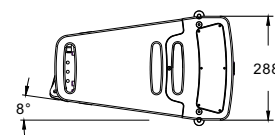
	Low Section	High Section
Transducers	1 x 10" weatherproof loudspeakers	1 x 1" throat compression driver coaxially mounted
Coil diameter	75 mm	45 mm
Type of load	MVC™ Bass reflex	Arrayable horn
Power (AES/ Peak)	300 W / 9000 W	80 W / 200W

CONSTRUCTION & CHARACTERISTICS

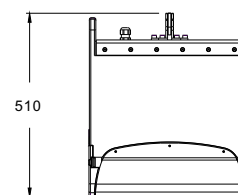
Cabinet	18mm birch plywood with internal braces
Crossover	Factory presets
Connectors ⁴	35cm link cable, 1 x Speakon NL4MP
Handles	4 wood integrated handles
Rigging	Proprietary 3 points flying system
Dimensions (H x W x D)	320 x 448 x 510 mm
Net unit weight	23.6 kg 51.9 lbs
Gross weight, packed	27.2 kg 59.8 lbs



Front



Side



Top

1. Sensitivity is the average SPL measured over the components rated bandwidth.

2. Power rating displays the long term AES power handling capacity using pink noise with a 6 dB crest factor over the components rated bandwidth

3. Directivity is averaged over the frequency range.

4. The SPEAKON connectors are wired as follow : LF: hot pin 1+, cold pin 1-, HF: hot pin 2+, cold pin 2-.



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