

GTO

DESCRIPTION

Outline's concept for GTO is to produce a large format line-source loudspeaker system that is flexible, adaptable, easy to use and which provides audio performance that meets the demands of the most discerning engineers, rental companies and production managers. GTO is an acronym for Grand Touring Outline, which describes our concept of a system engineered specifically for large-scale sound reinforcement applications.

In 2002 we launched the Butterfly system which contained a number of unique Outline engineering concepts, and which has brought us many new friends and customers around the world. GTO benefits from a process of natural evolution which retains the basic design principles, proven within the Butterfly project, and expands them into a new system which provides greater SPL, more control, improved resolution, faster transient response and unrivalled uniformity in long-distance projection.

One of the essential design elements retained from Butterfly is the V-shaped front baffle, for which Outline was awarded an international design patent in 2002, and to which we refer as the 'V-Power Concept'. This ground-breaking design allows individual sound sources to be positioned, when coupled in an array, much closer together than in conventional line-source systems. This facilitates superior acoustical coupling between high-frequency modules thus producing a smooth yet extended HF response.

It also creates the ideal 'unbroken baffle' shape through an array which minimises diffraction and deterioration of the mid-high frequencies, thus contributing to the far-field performance of the system.

GTO A COMBINATION OF POWER, STRENGTH AND LIGHT WEIGHT

GTO cabinets contain no less than ten transducers in a compact cabinet with an internal volume of just 340 litres (74.79 gals). It features four 3-inch diaphragm compression drivers, each loaded with our patented D.P.R.W.G. (first used in Butterfly), and whose combined output is channelled through a single output slot. Four 8-inch drivers produce the midrange frequencies, which are output via the same horizontal dispersion waveguide as the HF. Two 15-inch cone transducers generate the low frequency range, providing tremendous depth, articulation and fast transient response.

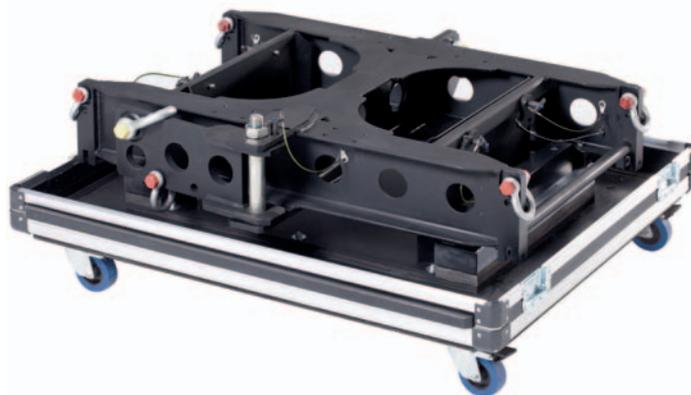
Despite the very high concentration of individual transducers within a GTO cabinet, we have managed to keep the weight down to just 96 kg (212 lb). The design contains a number of weight-saving components, but the greatest contribution to this success is the use of a space-age aluminium alloy from the aerospace industry, which we have used for the integrated flying hardware in preference to steel. This innovation reduces the per-cabinet weight of the hardware by 66%, yet is strong enough to fly up to 24 GTO cabinets with a total weight of 2.4 tons.

The splay angle between GTO cabinets is adjustable between 0° and 5° in 0.5° increments, with the addition of a 0.25° position intended for the uppermost cabinets in an array to provide additional control in far-field performance. Since the splay angle between cabinets affects the physical distance between drive units, the overall performance of a line-source system demands precise control over these parameters. A goniometer (a splay angle indicator), which is integral to the cabinet flying hardware, allows precise adjustment of the angle between individual cabinets which is then locked by insertion of a captive steel pin.

Both Mantas and Butterfly modules may be used for downfills by using the appropriate flying accessories, taking advantage of the intentional electro-acoustic compatibility and phase coherence between the different modules. It is also possible to mount Butterfly and Mantas cabinets above the main flying frame if required, providing a unique option for upward system coverage in venues where a very large vertical dispersion is required.



LINE ARRAY FAMILY



TECHNICAL SPECIFICATIONS:

FREQUENCY RESPONSE	(-10 dB) (±3 dB)	35 Hz ÷ 18 kHz 50 Hz ÷ 18 kHz
AVERAGE DISPERSION	Horizontal Vertical	90° Depending on array configuration
IMPEDANCE (Ω)	Low Mid High	2 x 8 Ω (min 6.5 Ω) 8 Ω (min 6.8 Ω) 16 Ω (min 15.3 Ω)
POWER - WATT AES	Cont. Low Mid High	Peak 4800 W 3200 W 2000 W
MAX SPL @ 1 m (calculated) (Single Unit, full space)	Cont. Low Mid High	Peak (+ 6 dB) 137 dB SPL 140 dB SPL 143 dB SPL

MAX SPL - 4 BOXES (calculated) (Simulated at 20 m - referred at 1 m)		
	Cont.	Peak (+ 6 dB)
Low	143 dB SPL	149 dB SPL
Mid	142 dB SPL	148 dB SPL
High	143 dB SPL	149 dB SPL

LOUDSPEAKERS AND LOADING

Low	2 x 15" hybrid band-pass loaded woofers
Mid	4 x 8" NdFeB partially horn loaded mid-woofer
High	4 x 3" diaphragm NdFeB compression driver loaded by 2 double V-coupled D.P.R.V.V.G.

WEIGHT - SINGLE UNIT	96 kg (212 lb)
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DIMENSION	<i>Net</i>	<i>With Pins inserted</i>
Height	460 mm (18.1")	460 mm (18.1")
Width	1126 mm (44.3")	1181 mm (46.5")
Depth	655 mm (25.8")	655 mm (25.8")

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